

Copyright

by

Magdalena Carolina Saldaña Villa

2017

**The Dissertation Committee for Magdalena Carolina Saldaña Villa Certifies that
this is the approved version of the following dissertation:**

**Framing disaster.
A topic modeling approach for the case of Chile**

Committee:

Thomas J. Johnson, Supervisor

Homero Gil de Zúñiga, Co-Supervisor

Gina Chen

Stephen Reese

Bethany Albertson

Jörg Matthes

Framing disaster.
A topic modeling approach for the case of Chile

by

Magdalena Carolina Saldaña Villa

Dissertation

Presented to the Faculty of the Graduate School of
The University of Texas at Austin
in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

The University of Texas at Austin

December 2017

Dedication

To my grandmother Aurora, who died soon after the 2010 earthquake in Chile, and my grandfather Juan, who has survived three massive earthquakes in southern Chile, including the strongest earthquake ever recorded in history.

Acknowledgements

This study is the culmination of the academic journey I began in July 2012, when I left my family, job, and friends in my home country of Chile to pursue doctoral studies in the U.S. During these five years, I grew as a person and scholar, made new friends, and found a new home. I want to formally acknowledge those who contributed not only to the completion of this dissertation but also to make my time in the U.S. one of the most fulfilling experiences of my life.

First and foremost, I have to thank Tom Johnson, my dissertation chair, for his constant support and guidance. I have never met a person as generous as he is when it comes to mentoring students. He read my dissertation drafts many times and usually returned feedback in less than 24 hours. Yes – *less than 24 hours*. He always offered words of encouragement when the finish line seemed too far away. As I constantly say, I was lucky enough to end up with the *#BestAdviserEver*. Truth be told, Tom is equally generous and devoted to any student who needs his help, even if they are not in his class, or if he is not on their dissertation committee. Tom reads everyone's conference papers because he wants students to succeed. He pays for ISOJ registrations in order to help students attend this wonderful symposium. And he pays for expensive surveys and fancy databases to be used by the Digital Media Research Program, his research group. I know this firsthand as I had the honor to be this group's student leader for two years. I am so grateful for having worked with Tom – he is not only a great mentor and researcher, but also an amazing friend.

Second, I have to thank my dissertation committee members whose suggestions and guidance made this dissertation possible. I started my dissertation project in the

Framing class with Steve Reese, who gave me the initial push to apply Western-developed theories to contexts other than the U.S. I later continued working on this project in Bethany Albertson's Public Opinion class, where I learned concepts crucial to the public opinion section of my dissertation. Gina Chen gave me valuable suggestions to use online news comments as a form of public opinion, and Jörg Matthes pushed me forward theoretically to understand frames and frame functions using Matthes' integrative model. I am forever indebted to these scholars who were incredibly generous and kind with their time and feedback during my dissertation journey.

I offer special thanks to Homero Gil de Zúñiga, who was the first professor I worked with at UT Austin. His teaching style, charisma, and sense of humor showed me academics can be cool and do cool things. I was a member of his research group, I took one of his classes, served as his teaching assistant, and, later on, I attended the inaugural Vienna/Princeton Doctoral Workshop he organized for advanced doctoral students. I received my first top paper award and my first publication in English because of Homero. Thank you for being my dissertation co-chair and an endless source of optimism and fresh ideas.

More people at UT Austin deserve formal acknowledgement. It has been such an honor to learn about agenda setting directly from Max McCombs, who has taught me so much about research and Academia. He also introduced me to the best BBQ places around campus, when I was still unfamiliar with this noble tradition. Rosental Alves, the heart and soul of the Knight Center for Journalism in the Americas, inspired me to study the state of journalism in Latin America, and included me as a part of the Knight Center Research Unit. George Sylvie helped me submit my first conference paper in English and gave me my first paid job as a research assistant when I was still a first-year doctoral student. Bob Jensen, one of the most brilliant professors we have at the UT Austin School

of Journalism, inspired my teaching during the four years I was his teaching assistant for his provocative UT signature class *Freedom: Philosophy, History, Law*. Having worked with these professors has been a real privilege.

I also want to thank Regina Lawrence, Mary Bock, Renita Coleman, and Iris Chyi, women who had a strong influence on me during the doctoral program. Each of them are outstanding communication scholars, and I truly appreciate the guidance and help they gave me on so many occasions.

This dissertation, and the entire road I had to drive to get here, would not be possible without the friendship and support of the graduate students I met during the doctoral program. I have been fortunate enough to make friends from many places around the world: Saif Shahin and Paromita Pain, from India; Joseph Yoo and Ji won Kim, from South Korea; Kyser Lough and Melissa Suran, from the U.S., and Ori Tenenboim, from Israel – they have been great colleagues and friends. Many thanks also to Hong Vu, from Vietnam, and Lei Guo, from China, who mentored me during my first year and have been a constant source of advice and inspiration. I am extremely grateful for having met *el contingente latino*: Adolfo Mora, from Mexico; Lourdes Cueva Chacón, from Peru; Ever Figueroa, from El Salvador, and Víctor García-Perdomo, from Colombia. Our constant discussions about race, gender, and Latin American politics provided me with great insight for this project, and despite we have not decided who owns the *pisco* or who plays better soccer, we have built a friendship that goes beyond research. I also want to thank my dear friends Alberto Ardèvol-Abreu, from The Canary Islands, and Jasper Van de Pol, from the Netherlands. They came to UT Austin as visiting scholars in 2013 and 2015, respectively, and showed me a different perspective of Academia and life in general.

The *#PhDgirls* Rachel Mourão and Shannon McGregor deserve a very special mention. Rachel, from Brazil, and Shannon, from the U.S., quickly became my best friends and ideal research partners. Together we ran endless stats marathons, faced memorable conference deadlines, and spent hours talking research and life at the many sleepovers we had at my house. Together we laughed and cried, and learned women can do great things when they support each other. We might live in different countries now, but I am sure our bond will overcome the distance. I love you both.

Many thanks to the Chilean family in Austin, especially Luciano Correa, Solange Valdés, Sebastián Souyris and the amazing Sebastián Astroza, who made me feel like I was home every *18 de Septiembre* with tons of Chilean food and wine. I will never forget that perfect night in June of 2016, when the Chilean soccer team defeated Argentina and won the Copa América Centenario. We celebrated all night long like we were in Chile. *Gracias, chilen@s en Austin.*

I must mention Cam Stone, my colleague at Texas Tech, who was the best friend I could possibly wish for when I landed in Lubbock. Cam introduced me to West Texas culture, made me a co-host of his *kickass* Rockin' Raider Radio Show, and made me fall in love with tater tots. When I was writing my dissertation, Cam proofread every single chapter of it to make sure this *Chilena chick* did not make too many awful mistakes. Because he is that kind and that generous. *Gracias Tejano! You da best.*

I conducted several interviews with Chilean journalists who covered the earthquake and tsunami occurring in northern Chile in 2014 for this project. I am extremely grateful for the time each of them took to speak with me in order to clarify my dissertation findings. Without them, this project would lack much context and perspective.

Finally, I want to thank my family in Chile whose love and support have meant so much to me. My dad Patricio, my stepmom Marlene, and my wonderful Tata Juan are the most important people in my life. They might not speak English, but they get as excited as I do with every conference paper and journal article that gets accepted. They are so proud of me, and yet they should be proud of themselves – I would not be the person I am if it was not for them.

Last, but without a doubt not least, I want to thank my husband Pedro León, my soulmate and love of my life. Without him, none of this would be possible. He is loving, he is caring, he is fun – he is the smartest person I have ever met. He is my best friend and I have learned so much from him. Pedrito: The best part of this journey was that I went on it with you. *Te amo.*

De corazón, mil gracias!

Framing disaster.
A topic modeling approach for the case of Chile

Magdalena Carolina Saldaña Villa, PhD

The University of Texas at Austin, 2017

Supervisor: Thomas J. Johnson

Co-supervisor: Homero Gil de Zúñiga

Guided by framing theory, this dissertation observes how the respective narratives of the Chilean government, media and public framed an earthquake and tsunami occurring in Chile on April 1, 2014. Three weeks after Chilean President Michelle Bachelet began her second presidency, an 8.2-magnitude earthquake struck off the northern coast of Chile. President Bachelet quickly declared a state of emergency, issued a precautionary tsunami warning for the entire coast, and evacuated 900,000 residents in the northern part of the country. Despite a timely response, the government encountered strong criticism from the public primarily based on how President Bachelet and her team handled a previous disaster, which occurred at the end of her first four-year term in 2010.

Most framing research focuses on how frames are created and embedded in news content. Research has also examined the effects of news frames on the audience. However, only a few studies have simultaneously analyzed how the three key actors of the framing process – the media, audience, and political elites, compete for their own frames to become salient and shape public opinion. This dissertation aims to fill this gap in the literature by identifying frames and frame functions in government press releases,

local and national news stories, and online news comments in the context of a natural disaster.

This study uses a mixed-methods approach to provide a holistic understanding of disaster news coverage. First, earthquake-related news stories and official press releases were content analyzed using structural topic modeling, an automated text analysis method. Second, online news comments posted to earthquake-related stories were analyzed using both structural topic modeling and qualitative textual analysis in order to achieve a more in-depth understanding of the online public discussion about the disaster. Third, semi-structured interviews were conducted with journalists covering the earthquake and subsequent tsunami in order to provide context to these findings.

The main findings from this dissertation indicate the media framed the governmental response to the 2014 earthquake as a result of lessons learned during the 2010 disaster, while the public framed it as a consequence of changes introduced by former President Sebastián Piñera to the National Emergency Office while he was in power from 2010 to 2014. Despite a successful crisis management during the 2014 disaster by the government, President Bachelet did not succeed in improving her public-evaluation rating, and those who supported her when posting comments online were not numerous enough to create countertopics for the negative evaluations. These conclusions confirm what other studies previously found regarding Chile: political trust is low among Chilean citizens, and the government is one of the least trusted institutions in the country.

This study matters because of its implications for democracy in a context where natural disasters occur often and are therefore normalized. Citizens who suffer damage in disaster contexts present lower evaluations of democratic institutions, lower support for democratic values and practices, and stronger dispositions toward action. As such,

understanding how Chilean citizens assessed the government's performance is crucial to address the impact of a natural disaster on public opinion formation.

Table of Contents

List of Tables	xviii
List of Figures	xix
INTRODUCTION.....	1
Chapter 1. Two disasters, one president	1
Theoretical argument	4
Study purposes	6
Methodology	9
Triangulation.....	10
Dissertation outline	11
BACKGROUND	13
Chapter 2. Chilean politics and disaster news coverage	13
Chile's recent political history	13
The Chilean media landscape	17
News coverage of natural disasters in Chile	20
The 27/F disaster in southern Chile	22
The 2014 earthquake and tsunami in northern Chile	24
Research about disaster coverage in Chile.....	25
THEORY AND LITERATURE	28
Chapter 3. Framing disaster	28
Defining frames and framing	28
Matthes' integrative model	31
How journalists and political actors frame the news	33
Can disasters be political in nature? Causal stories to understand policy problems.....	35
Covering disaster. The role played by the media.....	38
How journalists cover crises	38

Media portrayal of authorities in disaster news coverage.....	42
Understanding disaster. Public opinion and media influence.....	43
News comments as a form of public opinion.....	45
News comments as a space for public deliberation	47
Research questions and hypotheses	49
METHODS	55
Chapter 4. A mixed-methods approach for the study of frames.....	55
Topic modeling	56
Fitting topic models	59
Identifying the best model	61
Data collection	62
Media outlets.....	62
Political sources	65
Public opinion.....	66
Variables and database building	68
Analyses and procedures.....	71
Qualitative Textual Analysis.....	80
Semi-structured Interviews	82
RESULTS	85
Chapter 5. Government and Media Frames	85
Context.....	87
Overview.....	88
Dominant themes in the news coverage and government press releases.....	92
Authorities.....	96
Seismology.....	97
Tsunami.....	97
Valparaíso	98
Flights	99
Help.....	101

Housing	101
Schools	102
Reconstruction	103
Medical assistance	104
Jailbreak	105
Water	106
Human interest	107
Bachelet.....	108
Fishermen.....	109
Explanations.....	110
Local commerce.....	111
Jobs	112
Other	113
Highways	114
Disaster news coverage by different outlets	115
News media coverage versus government press releases	124
Lifespan of dominant themes.....	129
The role of ideology and past events	134
Framing disaster: media and government frames	137
Summary	139
RESULTS	142
Chapter 6. Public Opinion Frames.....	142
Overview	144
Dominant themes in the online news comments.....	154
Delegates.....	156
Be strong Chile	157
27/F.....	158
Seismology.....	159
Allowance	160
Jinxed	161

Speculation.....	162
Other (1) and (2)	163
Church.....	164
Public opinion and media influence.....	165
Media and public opinion topics by source	171
Public opinion counter-topics	175
Santiago as the center of national attention	176
International relations	177
Pinochet’s military dictatorship	178
Public opinion and past events.....	179
Framing disaster: public opinion frames.....	180
President Bachelet as jinxed	182
27/F as a learning experience.....	185
President Piñera as responsible for a successful crisis management	188
Summary	190
DISCUSSION	195
Chapter 7. An integrative approach for the study of disasters	195
Political and media context.....	195
Review of findings.....	198
Main themes in the government and media narratives	199
Main themes in the public opinion narrative	202
Media ideology and the use of past events	204
Frame functions in government, media, and public opinion content.....	205
Theoretical contributions	208
Methodological innovations.....	210
Limitations	213
Potential for future research.....	214
APPENDICES	216
APPENDIX A – Battery of questions (translated to Spanish).....	216

APPENDIX B. Post Hoc Tests – Topic comparison by news outlet (media)	218
APPENDIX C. Post Hoc Tests – Topic comparison by source (media and government)	225
APPENDIX D. Post Hoc Tests – Topic comparison by source (public opinion)	229
APPENDIX E. Zero-order Pearson’s correlations between media and public opinion topics by source (N=483)	231
Correlations EMOL (N=187)	231
Correlations <i>La Tercera</i> (N=196)	232
Correlations <i>La Nación</i> (N=100)	233
REFERENCES	234
VITA	248

List of Tables

Table 4.1. News stories retrieved for this study, by source.	65
Table 4.2. Government press releases retrieved for this study, by source.	66
Table 4.3. Online news comments retrieved for this study, by source.	68
Table 4.4. Summary of the methods, analyses, and datasets used in this study....	78
Table 5.1. Distribution of stories each week, by news outlet (N=705).....	118
Table 5.2. One-way analyses of variance. Comparison of topic coverage by news outlet (N=705).....	120
Table 5.3. One-way analyses of variance. Comparison of topic coverage by source (N=879).....	126
Table 5.4. T-test. Comparison of topic coverage lifespan in news stories and press releases (N=879).	131
Table 5.5. One-way analysis of variance. Comparison of topic coverage by source (N=879).....	136
Table 6.1. Distribution of comments each week, by news outlet (N=4,168).....	147
Table 6.2. Zero-order Pearson's correlations between media and public opinion topics (N=483).	167

List of Figures

Figure 2.1. Major earthquakes in Chile since 1939.	22
Figure 3.1. The design of the interdisciplinary research project on news framing (Matthes, 2012).....	33
Figure 3.2. Stone’s (1989) Typology of Causal Theories.....	36
Figure 4.1. Overview of common automated text analysis methods (Günther & Quandt, 2016).	57
Figure 4.2. Screenshot of the database created for this study (part 1).	70
Figure 4.3. Screenshot of the database created for this study (part 2).	74
Figure 5.1. Stories published by national newspaper EMOL (N=187).	91
Figure 5.2. Stories published by national newspaper <i>La Tercera</i> (N=196).	91
Figure 5.3. Stories published by national newspaper <i>La Nación</i> (N=100).	91
Figure 5.4. Stories published by local newspaper <i>El Longino</i> (N=222).	91
Figure 5.5. Press releases from the Chilean Government (N=174).	92
Figure 5.6. Comparison of press releases and news stories (N=879).	92
Figure 5.7. 20-topic model of the 2014 Chile earthquake and tsunami’s news coverage and government press releases (N=879).....	94
Figure 5.8. High-probability and exclusive words per topic (N=879).	95
Figure 5.9. Proportion of the corpus using the “Authorities” topic by source.....	96
Figure 5.10. Proportion of the corpus using the “Seismology” topic by source...97	
Figure 5.11. Proportion of the corpus using the “Tsunami” topic by source.....98	
Figure 5.12. Proportion of the corpus using the “Valparaíso” topic by source. ...99	
Figure 5.13. Proportion of the corpus using the “Flights” topic by source.....100	
Figure 5.14. Proportion of the corpus using the “Help” topic by source.101	

Figure 5.15. Proportion of the corpus using the “Housing” topic by source.	102
Figure 5.16. Proportion of the corpus using the “Schools” topic by source.	103
Figure 5.17. Proportion of the corpus using the “Reconstruction” topic by source.	104
Figure 5.18. Proportion of the corpus using the “Medical Assistance” topic by source.	105
Figure 5.19. Proportion of the corpus using the “Jailbreak” topic by source.	106
Figure 5.20. Proportion of the corpus using the “Water” topic by source.	107
Figure 5.21. Proportion of the corpus using the “Human interest” topic by source.	108
Figure 5.22. Proportion of the corpus using the “Bachelet” topic by source.	109
Figure 5.23. Proportion of the corpus using the “Fishermen” topic by source. ...	110
Figure 5.24. Proportion of the corpus using the “Explanations” topic by source.	111
Figure 5.25. Proportion of the corpus using the “Local commerce” topic by source.	112
Figure 5.26. Proportion of the corpus using the “Jobs” topic by source.	113
Figure 5.27. Proportion of the corpus using the “Other” topic by source.	114
Figure 5.28. Proportion of the corpus using the “Highways” topic by source. ..	115
Figure 5.29. Summary of topics found in Chapter 5, by source and type of coverage (N=879).	141
Figure 6.1. Comments posted to news stories published by national newspaper EMOL (N=2,495).	145
Figure 6.2. Comments posted to news stories published by national newspaper <i>La Tercera</i> (N=1,412).	145
Figure 6.3. Comments posted to news stories published by national newspaper <i>La Nación</i> (N=261).	145

Figure 6.4. Comparison of comments posted to news stories published by the three national newspapers (N=4,168).	145
Figure 6.5. Distribution of news stories and comments in national newspaper EMOL (percentages).	146
Figure 6.6. Distribution of news stories and comments in national newspaper <i>La Tercera</i> (percentages).	146
Figure 6.7. Distribution of news stories and comments in national newspaper <i>La Nación</i> (percentages).	146
Figure 6.8. 10-topic model of the 2014 Chile earthquake and tsunami’s online news comments (N=4,168).	155
Figure 6.9. High-probability and exclusive words per topic (N=4,168).	155
Figure 6.10. Proportion of the corpus using the “Delegates” topic by source.	156
Figure 6.11. Proportion of the corpus using the “Be strong Chile” topic by source.	157
Figure 6.12. Proportion of the corpus using the “27/F” topic by source.	159
Figure 6.13. Proportion of the corpus using the “Seismology” topic by source.	160
Figure 6.14. Proportion of the corpus using the “Allowance” topic by source.	161
Figure 6.15. Proportion of the corpus using the “Jinxed” topic by source.	162
Figure 6.16. Proportion of the corpus using the “Speculation” topic by source.	163
Figure 6.17. Proportion of the corpus using the “Other (1)” topic by source.	163
Figure 6.18. Proportion of the corpus using the “Other (2)” topic by source.	164
Figure 6.19. Proportion of the corpus using the “Church” topic by source.	165
Figure 6.20. Significant positive zero-order Pearson’s correlations between media and public opinion topics by source (N=483).	174

INTRODUCTION

Chapter 1. Two disasters, one president

The night of Tuesday April 1, 2014, a massive earthquake struck off the coast of northern Chile near the town of Iquique¹. Right after the earthquake, Chile's National Emergency Office told 900,000 coastal residents to evacuate as the magnitude 8.2 shock generated a tsunami.

The quake also triggered small landslides and many areas in the region lost power. Six deaths were reported and approximately 300 inmates escaped from a female prison in the immediate aftermath. As compared with other recent earthquakes—such as the deadly 7.0-magnitude shock occurring in Haiti during 2010, where more than 220,000 people died—the damage and casualties right after the disaster were very limited. Residents evacuated calmly through the streets, and once tsunami warnings were canceled (by early Wednesday, April 2), they were able to return home.

"The fact is, we will know the extent of the damage as time goes by and when we inspect the areas in the light of day," Chile's President Michelle Bachelet said on the morning of April 2, 2014. "The country has faced these first emergency hours very well" (Ford & Ahmed, 2014).

The government responded to the 2014 disaster quickly. President Bachelet declared a state of emergency and ordered a military response within five hours after the earthquake. In her first official press release following these events, Bachelet said, "The tsunami alert was set promptly" and emphasized the government's work to protect people's lives and belongings (*Prensa Presidencia*, 2014).

¹ Iquique is the capital city of the Tarapacá Region in northern Chile.

Yet, the night of the earthquake, social media exploded with comments against President Bachelet. Online users called her “jinxed” and advised people in the north not to listen to the president. The wave of negativity in social media, however, was not necessarily triggered by Bachelet’s response to the 2014 earthquake, but by her management of a previous natural disaster that caused more than 500 fatalities in 2010.

Bachelet had already been in power from 2006 to 2010, acting as Chile’s first female president. During her first term, Bachelet enjoyed high levels of popularity among Chilean citizens, to the point she attained an 84% approval rating by February 2010 – the highest level of approval a Chilean president has ever achieved when leaving office (Délano, 2010). However, two weeks before she ended her first presidency, an 8.8-magnitude earthquake struck center and southern regions of Chile. Bachelet’s government failed to set a tsunami alert right after the earthquake. When the tsunami hit the coast, more than a hundred people died by drowning (Mendoza, Poblete & Castillo, 2010).

This important mistake, which was caused by a series of miscommunications between Chile’s National Emergency Office and the Navy Hydrographic and Oceanographic Service, triggered disapproval of Bachelet’s actions by Chileans. In August 2012, a public opinion poll revealed citizens blamed President Bachelet’s government for the 2010 earthquake and tsunami consequences: 73% of the respondents attributed legal responsibilities to the authorities for their poor response to the crisis and expected them to be fined or even to go to jail. Similarly, 81% said they would flee from the ocean in case of an earthquake even if the National Emergency Office indicated no risk of a tsunami occurring (Cavallo, 2012). That is probably why, four years later, citizens’ criticism remained harsh regarding Bachelet. Despite the successful crisis

management the night of the 2014 disaster, the government's performance did not gain public approval.

Audiences turn to the media to satisfy their need for orientation (Matthes, 2006; McCombs, 2014), and such a need is higher during catastrophic events (Houston et al., 2012). The way the media cover disasters poses a significant impact on how the public perceives the consequences of such disasters and how citizens evaluate efforts made by authorities to deal with disaster consequences (Chattopadhyay, 2012; Strömbäck & Nord, 2006). As explained by Graber (2005) "during crises, the public depends almost totally on the media for news and for vital messages from public and private authorities" (p. 129). Thus, frames depicted in news might contribute to either people's recovery and resilience (Houston et al., 2012) or people's anxiety and fear of problems associated with the disaster (Iannarino, Veil & Cotton, 2015).

Research on disaster coverage has investigated how journalists cover earthquakes (Pellegrini, Puente, & Grassau, 2015), tsunamis (Kivikuru, 2006), hurricanes (Miller & Goidel, 2009), and terrorist attacks (Li, 2007). Studies have also explored authorities' response to a disaster and how the media evaluate those responses (Littlefield, & Quenette, 2007; Strömbäck, & Nord, 2006). Other research has focused on disaster effects regarding the audience (Carlin, Love, & Zechmeister, 2014), observing how divergent disasters may affect the public in a variety of ways (Correa, Scherman, & Arriagada, 2016).

However, there is still a lack of scholarship looking at media coverage, official response, and audience perception of a disaster all at the same time. The absence of investigation in this area limits the ability of researchers to holistically describe and interpret the effects of a natural catastrophe on citizens' everyday lives.

THEORETICAL ARGUMENT

Despite the proliferation of framing research, few scholars have simultaneously explored the involvement of the three key actors in the framing process: political elites, media organizations, and the audience. Various studies have shown how each of these respective actors influence the framing of news and is also influenced by the frames of other actors, but only by looking at one or two of these actors at a time. Matthes (2012) argues for integrating all these stages of the framing cycle in a single model to fully understand the dynamics of news framing. Using Matthes' integrative approach, this dissertation compared how the government, media, and audience framed a natural disaster occurring in Chile in April 2014.

In the news production process, journalists and media organizations frame news media content by selecting specific aspects of political and social realities to make them more prominent. These frames are transmitted to audiences who receive the information already interpreted and portrayed congruently with the views of news producers. Frames, however, are located not only in news media content but also in strategic communications of political actors as well as in the minds of citizens (Matthes, 2012). Audiences do not always follow the news media framing when making sense of reality. When exposed to media frames, people refer to their individual frames to organize and interpret incoming information and to draw inferences from that information (Pan & Kosicki, 1993). This involves a cycle where the framing process is negotiated and contested in at least two stages of news content creation – when political actors bring their own frames to the attention of journalists and media organizations, and when news frames compete with previous cognitive elaborations in the minds of citizens to shape their interpretations of issues, candidates and events.

Matthes' model takes the framing cycle into account and aims for systematic analysis of the three perspectives: political actors, media actors, and audience. Each one of these actors is exposed to news frames and, to some extent, is able to produce news frames or to have some influence on the framing process. To empirically apply this approach, the research design requires collecting data in these three distinct stages in order to achieve a complex and comprehensive understanding of the framing process as a whole. Also, the analysis requires looking for the same elements in the narratives of each actor, as well as to set a baseline where the definition of frames is clear and applicable to the three actors.

In this study, I relied on Entman's (1993) definition of frame and frame functions. According to Entman (1993), to frame is "to select some aspects of a perceived reality and make them more salient in a communicating text" (p. 52). Entman identifies four framing functions: frames define problems, identify causes, offer moral judgments, and suggest solutions. The same frame might vary in terms of the provided solution, or even the identified problem. Thus, looking for framing functions may be a more nuanced and precise path to understand how different actors portray the same issue and with what intentions. Consequently, this dissertation observed which functions were used by Chilean media, government, and public opinion when framing the 2014 disaster.

When identifying frame functions as defined by Entman (1993), *problem definition* and *causal interpretation* become the main elements to observe in communicating contexts. Any further *moral evaluation* and/or *treatment recommendation* depends on how the problem is defined and what factors originated it. Stone (1989) provides a typology to identify how situations and events become *problems* that move onto public policy. The typology categorizes problems according to their *causes* – for instance, accidental or intentional. I relied on Stone's (1989) typology of causal theories

to identify whether actors attributed the causes and consequences of the disaster to accident or human action.

My argument is the 2014 earthquake was framed by the media and public beyond the realm of accident and pushed into the realm of blame. As President Bachelet and her team were strongly criticized for their poor management skills when facing the 2010 disaster, I argue the blame citizens and media organizations attributed to her government in 2010 persisted in 2014. Then, media coverage and public conversation regarding the 2014 disaster were highly permeated and influenced by the 2010 narrative. I also argue the media portrayal and public evaluation would have been different had the disaster occurred under a different government – not the same that faced the tsunami and earthquake in 2010. By using Matthes’ integrative model, Entman’s frame functions, and Stone’s typology of causal theories, this dissertation tested this argument using a mix-methods approach.

STUDY PURPOSES

This dissertation examined how Chilean government, media, and public opinion framed the 2014 earthquake and subsequent tsunami in northern Chile. The main purpose of this inquiry was to observe the narratives of these three actors when discussing the earthquake in a country where natural disasters are said to be “normalized” – citizens have become used to the occurrence of these events, and how people experienced previous disasters might affect their interpretations of current ones (Correa et al., 2016).

The first goal of this study was to observe media coverage of the disaster. According to previous research, disaster coverage is not sustained for long periods of time, and most news stories are often written in the immediate aftermath of the disaster (Houston et al., 2012; Kivikuru, 2006). The coverage is said to be episodic (event

centered) rather than thematic (focused on the big picture) (Miller & Goidel, 2009) and the human-interest angle is the most common theme in disaster-related stories (Houston et al., 2012; Wenger et al., 1980).

The scope of a news outlet affects both the way disasters are portrayed (Miller & Robert, 2008) as well as the lifespan of the coverage – research indicates disaster coverage tends to last longer in local outlets (Houston et al., 2012). Based on this body of literature, I observed the lifespan of the 2014 earthquake coverage, identified the most salient themes in news stories, observed the presence of episodic versus thematic approaches, and explored differences between local and national coverage. News stories from local newspaper *El Longino* and national newspapers *El Mercurio*, *La Tercera*, and *La Nación* were analyzed to achieve this goal.

The second goal was to observe the official response to the disaster. Sniderman and Theriault (2004) have claimed political elites are “not free to frame issues however they wish” (p. 141), but elites know “if their frame becomes the dominant way of thinking about a particular problem, then the battle for public opinion has been won” (Nelson & Kinder, 1996; p. 1058). As such, I observed whether President Bachelet’s government was able to introduce frames into the disaster news coverage in order to win the public opinion battle she lost after the 2010 disaster. To achieve this particular goal, this dissertation analyzed official press releases to identify the themes emphasized by the government in the official information provided to the press. These themes were further compared with those found in the news coverage in order to observe whether topics salient in the media were in line with those provided by the government.

The third goal was to analyze public conversation about the disaster. According to Sellnow and Seeger (2013), citizens’ perceptions are shaped by how the media describe and characterize a catastrophic situation, while Cottle (2006) indicated people are likely

to discuss issues beyond the realm of the actual disaster because these events trigger ongoing political tensions, debates and projects. Thus, the public might echo the media portrayal of the event, or it may introduce different narratives in the conversation. To test these ideas, I observed online news comments posted to the same stories I analyzed to identify media themes.

The fourth goal was to identify whether the themes emphasized by the media and government shared any correlation with themes emphasized by the public. Previous studies focused on the political implications of disasters, but always looking at one or two actors simultaneously. This dissertation is the first study observing how government and news media narratives correlate with public opinion in the context of a natural disaster. To achieve this goal, themes emphasized in news stories and official press releases were correlated with salient themes in online news comments.

The fifth and final goal was to observe frames and frame functions based on Entman's (1993) definition of framing and Stone's (1989) typology of causal stories. I examined news stories, official press releases, and online news comments to determine which of the four framing functions were used by Chilean media, government, and public opinion to frame the disaster. Framing devices such as key words, subtle phrases, and latent themes were considered to identify functions used by each of the framing actors.

In summary, this study identified whether the most salient topics included in disaster media coverage were congruent with themes emphasized in government press releases; whether government and media topics were echoed by Chilean public opinion, and whether government and media topics were contested or complemented with new topics emerging from online public discussion. This dissertation also explored which frame functions were used for each actor when framing the 2014 earthquake and disaster in northern Chile.

METHODOLOGY

By using a mixed-methods approach—a computer-aided quantitative analysis of news comments, combined with qualitative textual analysis and interviews with journalists— this dissertation inductively identified frames emerging from news stories, government press releases, and citizens’ conversations in the form of online news comments.

To identify media frames, I analyzed earthquake-related news stories published by local newspaper *El Longino*, and three national newspapers: *El Mercurio*, *La Tercera*, and *La Nación*.

El Longino has a regional scope in northern Chile, and it was the main source of information in the areas struck by the earthquake. *El Mercurio* is a news outlet historically linked to the Chilean right wing and considered the most important newspaper in the country (Mönckeberg, 2009). *La Tercera* is also considered a right-wing outlet and is *El Mercurio's* closest competitor (Mazotte, 2014). *La Nación*, a newspaper usually associated as left wing, used to be state-owned, and it is currently only published online by the private company *Comunicaciones Lanet S.A.* (journalist from *La Nación*; personal communication, April 10, 2017).

To identify government frames, I analyzed official press releases from 14 ministries directly involved with the earthquake’s consequences, as well as Chile’s National Emergency Office, *Prensa Presidencia* (Chilean Presidency Press Office), and the local government of the two regions most affected by the earthquake – the Tarapacá Region, and the Arica and Parinacota Region.

Finally, to identify citizens’ frames, I examined online news comments posted to the same stories I analyzed to identify media frames in order to study how readers discussed earthquake-related news. As a matter of record, neither *El Longino* nor the

Chilean government's websites allow news readers to post comments. Thus, I studied comments posted to news stories from national newspapers only.

Triangulation

This study triangulates methods (topic modeling, qualitative textual analysis, and interviews) as well as datasets (news stories, government press releases, and online news comments).

Topic modeling is an inductive, quantitative method which belongs to the automated text analysis methods family. Topic modeling treats large collections of text as observations arising from a generative probabilistic process that includes hidden variables which, in turn, reflect the thematic structure of a text. This method has proven to be more efficient than other automated text analysis techniques to extract topics from media content (Guo et al., 2016). For the case of this study, I used Structural Topic Modeling (STM) developed by Roberts, Stewart and Tingley (2014a), to extract topics from news stories, press releases, and online news comments. This type of modeling allows documents to present more than one topic in the content (mixed-membership models), while it also includes variables associated with the content (such as author or date) to estimate more accurate models.

Qualitative textual analysis was utilized to achieve a more nuanced understanding of the public conversation about the 2014 disaster. Based on grounded theory and the constant comparative method, the analysis followed an iterative process where news comments were examined in several coding cycles to identify patterns and provide meaningful responses to the questions asked in this study as per previous research (Glaser & Strauss, 1967; Tracy, 2013).

Interviews with journalists were conducted to contextualize findings from Structural Topic Modeling and clarify relationships identified in the statistical analyses. I interviewed seven journalists from the three national newspapers included in this study and asked them how they went about writing earthquake-related stories, how they selected their sources, and how they determined the main angle of the narrative. The goal was not to find patterns emerging from journalists' responses, but to use their perspective to ensure accuracy and validity (Tracy, 2013) when explaining this dissertation's findings.

DISSERTATION OUTLINE

This dissertation comprises seven chapters. Chapter 2 provides an overview of Chile's political and media landscapes emphasizing the role of the military regime in the shaping of the economic and political environment in the country. This chapter also provides a review of the most important earthquakes occurring in Chile over the last 80 years. The final section of the chapter focuses on the academic research conducted on Chilean media coverage of disasters and its implications for journalism and democracy.

Chapter 3 describes the theoretical foundations of this project – framing theory and Matthes' (2012) integrative approach to the study of framing. This chapter also provides a literature review of the way journalists cover disasters. Further, a review of research on news comments is also provided in this chapter. The last section brings these concepts together culminating in the list of research questions and hypotheses driving this dissertation.

Chapter 4 describes the mixed-methods approach guiding this study – an inductive, quantitative analysis of news stories, government press releases, and online

news comments using Structural Topic Modeling, combined with qualitative textual analysis and semi-structured interviews.

Chapter 5 presents the first set of results of this dissertation – how the media covered the disaster, and what elements were salient in the coverage as compared with the official press releases. Chapter 6 outlines the second set of results, describing the elements that became salient through public opinion and how, if at all, those elements related to media and government themes.

Finally, Chapter 7 presents the discussion of the findings and provides suggestions for future research.

Chile is an ideal case study to expand scholarship on disaster news coverage, crisis management, and support for democracy. First, it is a fairly stable democracy and yet, it is still consolidating from the military regime that ruled the country between 1973 and 1990 (Carlin et al., 2014). Second, Chile is no stranger to natural disasters (earthquakes, wildfires, landslides, volcanic eruptions) and as such, it is said to be a place where disasters are “normalized” (Correa et al., 2016). Consequently, people’s perceptions of natural catastrophes are likely to be affected by factors other than the disaster itself. Third, this is the first time in Chilean history that a president must face the same type of disaster twice and in different presidential terms. This ensemble makes Chile a unique case to observe under which conditions journalists cover natural disasters as inevitable crises or as problems amenable of human control. This case also allows for the observation of a public opinion able to manifest itself through online venues. It is also a good example of an event where political frames compete with media frames to gain the attention of the audience. Thus, this dissertation further extends the understanding of public opinion effects of natural disasters in a relatively young but stable democracy.

BACKGROUND

Chapter 2. Chilean politics and disaster news coverage

This chapter provides an overview of Chile's political and media landscape emphasizing the role of Augusto Pinochet's dictatorship in the shaping of the current economic and political environment in the country. As this dissertation explores media coverage of an earthquake, this chapter also provides a review of the most important earthquakes occurring in Chile over the last 80 years. The final section of the chapter focuses on the academic research conducted on Chilean media coverage of disasters and its implications for journalism and democracy.

CHILE'S RECENT POLITICAL HISTORY

Chile is often presented as the poster child for democracy and market-friendly policies in Latin America (Siavelis, 2009; Navia, 2016). The nation is praised for its financial and macroeconomic stability (The World Bank, 2017); it is one of the few Latin American countries to enjoy the international financial market's highest investment rating (Santiso, 2006), and it is the first (and currently the only) South American country to become a member of the Organisation for Economic Co-operation and Development (OECD, 2010)². Yet, there are increasing levels of citizen dissatisfaction with the way Chilean democracy functions. A recent public opinion poll showed only 11% of Chileans think democracy works well or very well, and the government, congress, and political parties are viewed as the least trusted institutions in the country (CEP, 2017).

² Established in 1960 by 18 European nations plus the United States and Canada, the Organisation for Economic Cooperation and Development (OECD) is a group of 34 member countries that discuss and develop economic and social policy. OECD members are democratic countries that support free market economies, and are said to be among the richest countries in the world (Investopedia, n.d.).

Understanding Chilean politics requires knowing Chile's recent political history. In 1970, Salvador Allende became the world's first democratically elected Marxist president (BBC, 2017). By 1973, the country was deeply polarized between those who supported Allende's radical social reforms and those who did not agree with a socialist government. Strikes by truck drivers and copper miners weakened the economy, there was a shortage of basic provisions, and the inflation rate soared to more than 300% (Inflation.edu, n.d.). On September 11, 1973, a military junta led by General Augusto Pinochet overthrew the government and started a military dictatorship that "imposed a curfew, abolished Congress, and closed or took over schools and media institutions. They banned political parties, labor unions, and other social organizations" (Sorensen, 2011; p. 401). The military regime lasted 17 years and killed, tortured and/or imprisoned more than 40,000 people (The Associated Press, 2011).

The violent military regime ruling the country between 1973 and 1990 led to profound changes in Chilean society. Further, some of the animosities between supporters and detractors of the military dictatorship still persist. In 2013, during the 40th commemoration of the coup d'état, 55% of Chileans evaluated the dictatorship as bad or very bad, 9% said it was good or very good, and a third had no opinion or saw it as a mix of good and bad (Long, 2013).

Between 1990 and 2010, Chilean citizens elected four presidents, all of them a part of the center-left *Concertación*³ coalition that ruled the country after Pinochet: Patricio Aylwin (1990-1994); Eduardo Frei (1994-2000); Ricardo Lagos (2000-2006); and Michelle Bachelet (2006-2010).

³ *Concertación de Partidos por la Democracia* (Concert of Parties for Democracy) is the name for the coalition of center-left political parties that governed in Chile from 1990 to 2010. Nowadays, *Nueva Mayoría* (New Majority) is the coalition in power, and it is formed by nearly the same parties as the *Concertación*.

Michelle Bachelet was a well-known political figure before making history as Chile's first female president. Her father was an air force officer who was tortured by the Pinochet regime and died in custody in 1974 (Long, 2014). Bachelet herself was tortured by the military in 1975 and then went into exile in East Germany (BBC, 2017). A trained pediatrician, Bachelet became Chile's first female Minister of Public Health (2000-2002) and then the first female Minister of Defense (2002-2006). In January 2006, she defeated right-wing candidate Sebastián Piñera in the runoff election and became the first female president in Latin America who was not the wife of a previous president or powerful political leader (Londoño, 2017).

According to the last public opinion poll conducted during her first presidency, Michelle Bachelet enjoyed an 84% approval rating in February 2010 just days before finishing her first four-year term (Adimark GfK, 2010). This marks the highest level of approval a Chilean president ever achieved when leaving office (Délano, 2010). However, Chilean laws do not allow presidents to run for a second consecutive term in office. As such, Bachelet did not run, and her popularity was not transferred to the candidate of her party. Instead, Harvard-trained economist Sebastián Piñera (who was defeated by Bachelet in 2006) won the 2010 runoff election and became the first right-wing democratically elected president since 1958 (Carlin et al., 2014).

Serving as a senator in the Chilean Congress between 1990 and 1998, Sebastián Piñera was one of the richest men in Chile when he took office in March 2010 (BBC, 2010). Piñera invested in Chile's biggest airline LAN, the country's top soccer club *Colo Colo*, and a television network, *Chilevisión* (BBC, 2010). That is why he is often compared with former Italian Prime Minister Silvio Berlusconi, richest man in Italy and owner of three Italian TV channels as well as the A.C. Milan soccer club (Daniels & Alexander, 2010; TV Tropes, n.d.)

Although Piñera benefited from Pinochet's economic reforms when making his fortune and was supported by Pinochet's right-wing when he became a senator, Piñera kept his distance from the military regime and has always argued he voted "No" in the 1988 referendum to keep Pinochet in power (BBC, 2010; Navia, 2017).

During Piñera's presidential campaign, he promised to apply his business know-how to running the government. Indeed, the country grew under his reign while unemployment and poverty declined. Yet, a number of controversial issues during his watch (such as the student protests in 2011 demanding access to free public higher education, and a census in 2012 that failed to count more than one million people) made him the most unpopular president since the restoration of democracy (Navia, 2017).

Michelle Bachelet channeled a portion of her previous popularity and was once again elected president in the 2013 runoff election. However, according to political scientist Patricio Navia (2017), her second term turned out to be "disastrous." A series of political scandals involving Bachelet's son and daughter-in-law have damaged her reputation and approval ratings. Notwithstanding these events, Bachelet will be remembered for her constant efforts to improve gender equality in the country. In a recent piece published by *The New York Times*, a variety of her achievements in this area were praised: legislative efforts to fight workplace discrimination, to protect victims of domestic violence and to expand health care for women during her first presidential term, and the creation of a ministry of women and gender equality, an electoral change requiring at least 40% of candidates running for office to be women, and the decriminalization of abortion in special situations during her second four-year term (Londoño, 2017).

Interestingly enough, on the verge of a new presidential election in November 2017, Sebastián Piñera has once again become the right-wing candidate and frontrunner to return as Chile's president:

Now, Bachelet is the least popular president in Chile's history and, by contrast, Piñera looks rather attractive. Though he struggled with approval as president, the economy expanded and people did well. Chileans might not like him much, but they remember that under Piñera there were jobs and growth, and now, under the much more personable Bachelet, the economy is stagnant (Navia, 2017; para.6).

If Piñera wins in November 2017, Chile may become the latest Latin American country to shift to the right in recent elections (Navia, 2017).

THE CHILEAN MEDIA LANDSCAPE

Augusto Pinochet's military regime significantly impacted the Chilean media landscape. Left-wing media were persecuted during the dictatorship, and the press was unable to report on arrests, disappearances, killings and torture. According to Reporters Without Borders (2006), 68 media personnel—including editors, reporters, photographers, cameramen, and printing press workers—were killed or disappeared between 1973 and 1986 for being activists or producing stories against the regime. As a consequence, opposition press experienced notable difficulties to survive as compared to those sympathetic with the regime. Nowadays, “virtually all media has been owned by only a few different individuals and families who were staunch supporters of the Pinochet regime” (Sorensen, 2011; p. 406).

One of the stronger supporters of Pinochet's dictatorship was conservative newspaper *El Mercurio*, the flagship paper of the news media company *El Mercurio S.A.P.* Its owner, Agustín Edwards, collaborated with the CIA to destabilize Salvador Allende's socialist government in the early '70s and supported the military coup in 1973

(González, 2000; Herrero, 2014). Once Augusto Pinochet took power, *El Mercurio* openly supported the military regime, and its journalists worked with Pinochet's secret police force fabricating stories to explain the deaths and disappearances of political prisoners (Sorensen, 2011).

When in power, Pinochet introduced vast economic reforms to reshape the country's economy and adopted a neoliberal model, adhering to free-market principles and cutting trade barriers to spur foreign imports (Rao, 2012). The neoliberal logic also affected the media system which subordinated itself to the market dynamics (Navia & Osorio, 2015). According to Godoy and Gronemeyer (2012), Pinochet's neo-liberal policies led to an irrevocable entrenchment of a private, transnational, market-based hegemony in communications and media that harms smaller or alternative outlets, which are increasingly weakened because advertising income is increasingly diverted to mainstream, dominant ones. Although the current pro-market media model was originally imposed by Pinochet, it was retained by governments elected after 1990 (Godoy & Gronemeyer, 2012).

The media holding *Consortio Periodístico S.A. (Copesa S.A.)* highly benefited from Pinochet's economic reforms. Also associated with Chile's political right (Gronemeyer & Porath, 2015), *Copesa S.A.* was rescued by the military dictatorship when it experienced financial issues after the economic crisis in 1982. It was then acquired by a business group emerging during Pinochet's regime (Mönckeberg, 2009), and nowadays it belongs to businessman Álvaro Saieh, who was also part of Pinochet's group of neoliberal economists (Navia & Osorio, 2015).

Today, *El Mercurio S.A.P* and *Copesa S.A.* are the most important news companies in Chile – 90% of newspaper ownership for the entire country is concentrated in these two groups (Rao, 2012). The former owns two national dailies, an evening

metropolitan newspaper, and at least 20 regional/local newspapers throughout the country (Mellado, 2012), while the latter owns two national dailies, two free morning and evening metropolitan editions, a local newspaper in southern Chile, and three weekly magazines (Mazotte, 2014). According to Reporters Without Borders, “Chile continues to suffer from corruption of the military dictatorship, and the concentration of media ownership limits the democratic debate” (Reporters Without Borders, 2017; para.1). As both *El Mercurio S.A.P* and *Copesa S.A.* are said to promote the ideas of the Chilean right wing, the lack of ideological diversity in the Chilean print press is worrisome, to say the least. For a media system to achieve structural pluralism, a variety of media with different owners is required in order to reflect different viewpoints, acknowledge diverse cultural representations, and offer mutual interaction possibilities (Gronemeyer & Porath, 2015; Klimkiewicz, 2010).

After 27 years of democracy in the country, Chilean journalists no longer face political persecutions or official censorship. Yet, the strong concentration of media ownership is still a barrier to achieve a press that is completely free. Reporters are restricted by market dynamics that privilege a commercial, for-profit model with little room for in-depth, investigative pieces. According to a survey of journalists in Chile, reporters complain about pressures from advertisers and media owners – at least 45% of respondents have been asked to cover a story just because it was related to an outlet owner, board executive, or advertiser. Journalists also said the lack of investigative journalism and the coverage of irrelevant topics are the most important problems journalism faces in Chile (UAH, 2013).

Chilean journalism has also been accused of excessive sensationalism and melodrama, especially in times of disasters. Personalization—private, personal, and concrete affairs rather than public, social, or abstract issues—and emotionalization—

stories aiming for emotional reactions in the audience—are elements from the melodramatic genre often found in journalistic work (Mujica & Bachmann, 2015a). In a study including Chile, Brazil, Ecuador, Mexico and Cuba, “Chile is in the top of sensationalism, the focus on private life and the use of emotions in the news” (Mellado et al., 2016; p. 12). A study conducted by the National Television Council found the coverage of the 2010 disaster in southern Chile proved harmful to the audience as the excessive repetition of devastating images shown in the media caused anxiety and emotional saturation in much of the public (CNTV, 2010). Instead of providing information for a better understanding of the catastrophe, stories mostly focused on the pain of the victims, triggering worry and excessive sadness in the audience, and engraving images of destruction, suffering and looting in the viewers’ memories (Puentes, Pellegrini & Grassau, 2013).

The following section describes the most significant natural disasters in Chile and how disasters are usually covered by Chilean journalists in a context where they are said to be “normalized” (Correa et al., 2016).

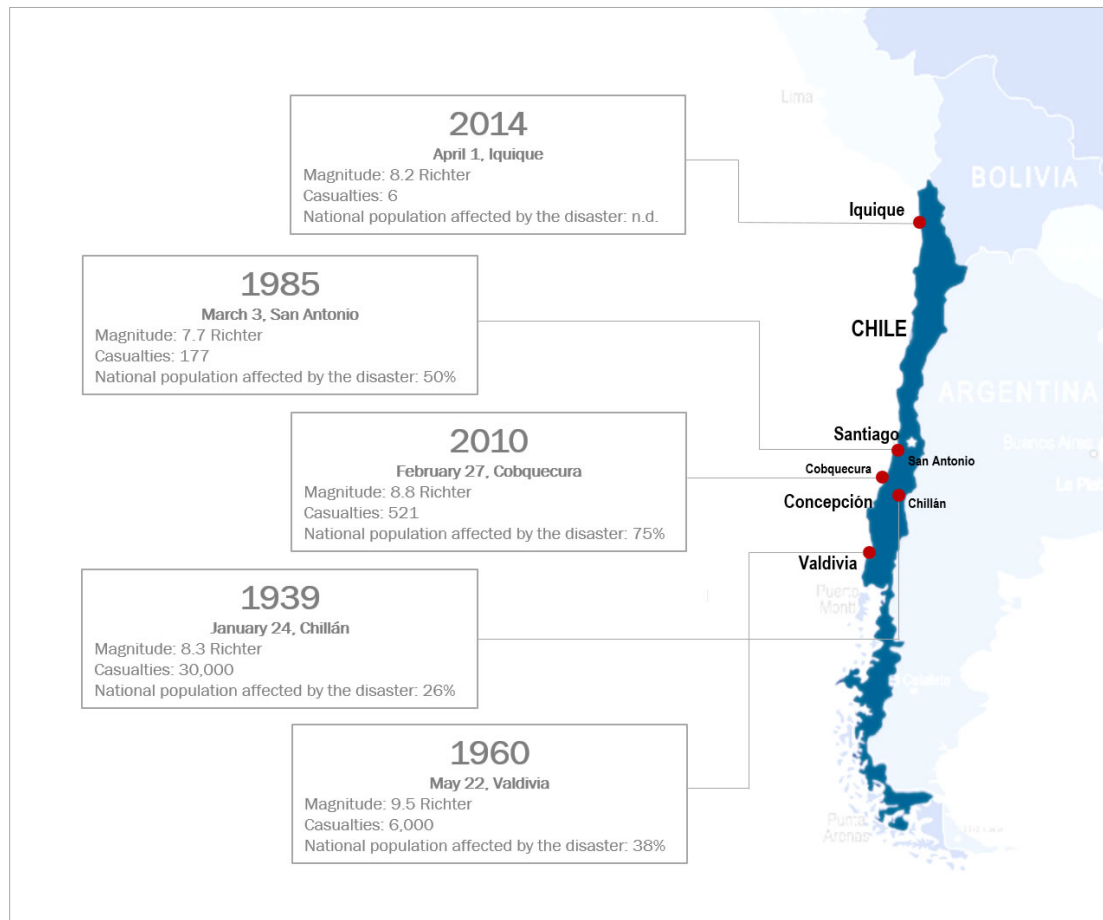
NEWS COVERAGE OF NATURAL DISASTERS IN CHILE

Chile is no stranger to natural disasters. The country is often affected by wildfires, landslides, volcanic eruptions, and floods due to overflowing rivers (Correa et al., 2016). Chile is also an active earthquake zone, and as such, the country’s coastline has suffered repeated earthquakes of great magnitude over the 500 years of its recorded history (Jacobson & Stein, 2017). That is why disasters are “normalized” in the country – citizens have become used to the occurrence of these events (Correa et al., 2016).

According to the U.S. National Oceanic and Atmospheric Administration, magnitude 8 earthquakes occur in Chile every 10 to 25 years and produce tsunamis that

travel far beyond the shores of the country causing great devastation (NOAA, 2000). For instance, the 9.5-magnitude earthquake in 1960 in Valdivia is the largest earthquake ever instrumentally recorded in human history. This earthquake generated tsunami waves that destroyed several cities on the Chilean coast, and also affected Hawaii and Japan, causing numerous casualties and extensive property damage in those countries (NOAA, 2000). Yet, the deadliest earthquake in Chile was the 8.3-magnitude earthquake occurring in Chillán in 1939. According to data from the Chilean government, the disaster caused 30,000 fatalities (Gobierno de Chile, 2010). At that time, Chilean structures were not capable of withstanding such a powerful shock, and most people who died did so in bed as their houses fell on top of them (Devastating Disasters, 2015). Figure 2.1 illustrates the most damaging earthquakes that occurred in Chile over the last 80 years.

Figure 2.1. Major earthquakes in Chile since 1939⁴.



The 27/F disaster in southern Chile

Chilean presidents constantly deal with crises derived from disasters. During her first presidency (2006-2010), Michelle Bachelet managed a volcanic eruption in the south—Chaitén, May 2008—, a 7.7-magnitude earthquake in the north—Tocopilla, November 2007—, and the 8.8-magnitude earthquake and subsequent tsunami in Concepción on February 27, 2010 (Radio Agricultura, 2015). The 2010 earthquake, also

⁴ This map was created with data from the 2010 report “*Plan de reconstrucción terremoto y maremoto del 27 de febrero de 2010 – Gobierno de Chile*” [27/F earthquake and tsunami reconstruction plan – Government of Chile].

known as 27/F, has been one of the strongest earthquakes in recent years, even stronger than the deadly 7.0-magnitude earthquake that hit Haiti in 2010 (Martin, 2013). It devastated houses, hospitals, schools, roads and businesses in half of the country, and the economic losses were more than 20 times greater than those inflicted by Hurricane Katrina in 2005 (Useem, Kunreuther, & Michel-Kerjan, 2015). It released so much energy that NASA later estimated the earthquake tilted the Earth's axis by three inches (Useem et al., 2015). Immediately after the earthquake, a tsunami destroyed Chile's central coast and Juan Fernandez Island totaling a loss of close to \$30 billion and leaving more than 500 people dead (Mendoza, Poblete, & Castillo, 2010).

The 27/F disaster occurred during the last days of Michelle Bachelet's first presidency. Both she and her team were strongly criticized for their poor handling of the crisis as they failed to set up tsunami warnings on time and underestimated the danger of the subsequent waves. Many of those who died did so in the tsunami after receiving a Chilean Navy's call saying there was no danger of one developing. Moreover, food shortages and a lack of electricity created scenes of desperation, episodes of looting and violence, and feelings of insecurity among people (Saldaña & Parra, 2013).

Many of these problems could have been avoided had the government declared the affected regions under a state of emergency, sending the army to patrol the streets right after the earthquake. Instead, President Bachelet took 36 hours to declare a state of emergency, which is considered as a too-slow first response to the disaster. *La Tercera* indicated President Bachelet's government had shown "incomprehensible weakness and slowness" at managing the crisis (*La Tercera*, 2010, March 2), and *El Mercurio* called on President-elect Sebastián Piñera to "restore hope" to Chile once he took office two weeks after the disaster (*El Mercurio*, 2010, March 4). Even the international media reported on Bachelet's crisis management skills: "Chile's outgoing president Michelle Bachelet has

been accused of incompetence, after her government was criticized for failing to grasp the scale of the country's devastating earthquake" (Hough, 2010, March 4, para.4).

In March 2010, President Bachelet ended her first presidency and president-elect Sebastián Piñera took office starting a reconstruction program in the country. He also had to face other crises during his term: the rescue of 33 trapped Chilean miners in the Atacama Desert—Copiapó, October 2010—, a volcanic eruption in the south—Puyehue, June 2011—and several wildfires in 2012 (Hernández, 2012).

The 2014 earthquake and tsunami in northern Chile

When President Piñera left office on March 11, 2014, Michelle Bachelet began her second presidency. In less than a month, on April 1, 2014, an 8.2-magnitude earthquake struck off the coast of northern Chile. During this second earthquake, President Bachelet declared a state of emergency and ordered a military response within five hours after the earthquake. She also set a precautionary tsunami alert for the entire Chilean coast and evacuated 900,000 people in the north (BBC, 2014). There were six casualties – three people died of heart attacks, two others were crushed by a building collapse, and a sixth person died during the evacuation (Univision, 2014).

In her first official press release following these events, Bachelet said “the tsunami alert was set promptly” and emphasized the government's work to protect people's lives and belongings (*Prensa Presidencia*, 2014). Citizens, on the other hand, had a *déjà vu* moment, remembering the authorities' call to remain calm in 2010. “I would do exactly the opposite of what she (President Bachelet) says,” a news reader posted in the comments section of EMOL on April 2, 2014. The media reported President Bachelet and her team “learned the lesson” from the 2010 earthquake and did a better job handling the situation in 2014 (Medina, 2014, April 2). News stories and political

analyses of the 2014 disaster constantly compared Bachelet's decisions in 2014 with those made in 2010. A great deal of attention was devoted to observe how the President would act this second time around.

How did the government portray its own performance after the 2014 earthquake? Did they attribute the small number of casualties to the magnitude of the earthquake (lower than the 27/F) or to the "lessons learned" from 2010? What elements did the media emphasize in the news coverage of the earthquake and subsequent tsunami? And how did public opinion evaluate the official response to the 2014 disaster? This dissertation aims to answer these questions drawing upon framing theory.

Research about disaster coverage in Chile

Most of the research on disasters in Chile focuses on how the media cover these type of events (Pellegrini et al., 2015; Puente et al., 2013; Yez, 2013). Studies have found Chilean media focus on personalization and emotionalization. As exemplified by Mujica and Bachmann (2016), "a journalist asks the victim of a natural disaster how she feels after losing everything with a close-up of her tears. The next story features a sick child while intensely emotional music soars" (p. 1). These techniques have been found detrimental to the dignity of people featured in news stories and negative for news audiences. According to a poll conducted soon after the 27/F, audiences complained about the effects of sensational news coverage on children, as the focus of the stories was on violent lootings and images of devastation, instead of information that could help the victims (Consejo de Ética de los Medios, 2010; Mujica & Bachmann 2015b; Mujica & Bachmann, 2016).

Pellegrini et al. (2015) studied the presence of journalistic standards in television news coverage of the 27/F. These scholars found that immediate disaster consequences

(such as transportation and housing problems) were the most prominent themes during the first days of coverage, while human-interest stories were more prominent in the following days. A deeper analysis of how the disaster could affect people's lives in the long term was absent. Official sources and experts were featured less often than citizens telling testimonial stories, which is consistent with literature indicating journalists are more open to include unofficial sources in times of crisis (Pantti & Wahl-Jorgensen, 2011; Shehata, 2010). The use of slow motion and dramatic music was common, in line with the melodramatic portrayal that characterizes the news coverage of these events (CNTV, 2010; Mujica & Bachmann, 2016). The study also found a high presence of opinion and speculation, which increased in the days after the disaster, despite that more information was available to fill informative gaps (Pellegrini et al., 2015).

Other research has focused on the effects of a disaster on the audience (Carlin et al., 2014; Correa et al., 2016). By analyzing data from a survey of Chilean citizens conducted eight weeks after the 27/F, Carlin et al. (2014) found disaster damage had negative effects on democratic behaviors as victims were more supportive of military and executive coups, less supportive of local government, and less politically tolerant.

In a more nuanced analysis, Correa et al. (2016) found people's responses differ by type of disaster. As earthquakes are a common event in the Chilean disaster repertoire, individuals have become desensitized to this type of catastrophe and are able to engage in more rational analysis of the disaster. In contrast, unexpected events such as urban fires can trigger more emotional reactions in the audience.

Although the studies previously described have significantly contributed to the literature on disaster news coverage and disaster effects, very few studies have simultaneously observed the government response, media coverage, and audience perception of a disaster. As such, this dissertation aims to fill this gap in the literature by

drawing upon framing theory. Through the analysis of official press releases, news stories, and online news comments, this dissertation aims to further the theoretical understanding of framing disaster at the communicator level, the news content level, and the effects level in the Chilean context.

THEORY AND LITERATURE

Chapter 3. Framing disaster

This dissertation analyzes how the Chilean government, media, and public framed the 2014 earthquake and tsunami in northern Chile. The purpose of this study is to identify how Chilean media covered the disaster and what elements were emphasized in the narrative, how the Chilean government portrayed the disaster, and how Chilean public opinion evaluated authorities in the online discussion of disaster-related news stories.

In this chapter, I explore the concept of framing and explain the definition and model applied by this study to identify frames. I also describe how the three actors of the framing process—news media, political elites, and public opinion—influence the framing of news and are also influenced by the frames of other actors. The following section provides a literature review of the way journalists cover disasters. Following these sections, I then review the literature on news comments and argue that online public deliberation may be treated as form of public opinion. The last section of this chapter brings these concepts together culminating in the list of research questions and hypotheses driving this dissertation.

DEFINING FRAMES AND FRAMING

Framing research studies how elites compete to define issues their way and how such definitions are disseminated to the public through the news media (Berinsky & Kinder, 2006). The term “framing” refers to modes of presentation journalists and other communicators use to present information in a way that resonates with existing underlying schemas among their audience (Shoemaker & Reese, 2014). Framing is often traced back to roots in both psychology and sociology (Cacciatore, Scheufele & Iyengar,

2016; Pan & Kosicki, 1993), and it is based on the assumption that how an issue is characterized in news reports can have an influence on how it is understood by audiences.

Scholarly literature provides several definitions of frames and framing incorporating different concepts. According to Entman (1993), to frame is “to select some aspects of a perceived reality and make them more salient in a communicating text” (p. 52). For Gamson and Modigliani (1987), a frame “suggests what the controversy is about, the essence of the issue” (p. 143), while Reese (2001) highlights the socially shared reality of producers and consumers of media content when arguing that frames “are socially shared and persistent over time” (p. 11). Gitlin (1980) adds the concept of ideology suggesting news frames transmit the ideology of news producers to media audiences.

Although these definitions enrich our understanding of frames and framing, having all these definitions might generate disagreement over what exactly constitutes framing. Several scholars have pointed this problem out. Matthes and Kohring (2008) indicate most frame definitions cannot be directly translated into empirical indicators as they are rather vague. Similarly, in their recent piece about “The end of framing,” Cacciatore et al. (2016) argue that communication scholars have moved to “a definition of framing that encompasses virtually all types of persuasive effects and therefore has extremely limited utility for media effects scholars” (p .9). In other words, any media effects study could be labeled as a framing study. Thus, Cacciatore and colleagues urge scholars to go back to the concept’s original theoretical foundations and adopt a much narrower conceptualization of framing to avoid overlapping with other media effects models, such as priming or agenda setting.

The way we define concepts affects the way we measure them. Most likely due to the broad range of framing definitions, operationalizing the frame concept has also been a

target of criticism. According to DiMaggio, Nag and Blei (2013), researchers do not always describe their methods to operationalize frames. “Some scholars simply read texts and produce virtuoso interpretations based on insights their readings produce. The limitations of this approach for generating reproducible results are apparent” (p. 577). Likewise, Matthes (2009) also points out the lack of operational precision in framing studies. By conducting a content analysis of 131 framing articles in the world’s leading communication journals, Matthes found the translation of framing definitions toward concrete, operational steps was not transparent in a large part of the analyzed literature. Definitions were general giving little information about how to operationalize frames. Most of the studies were not theoretically driven (their operationalization of “frame” was not rooted on theoretical definitions), and there was a lack of reliability reporting in a vast amount of studies (Matthes, 2009).

The way we find frames has also been contested. Cacciatore et al. (2016) invite scholars to operate deductively based on frames found in previous research. However, deductive approaches require frames to be known beforehand, and they must suit the topic under investigation. As such, it is nearly impossible to identify newly emerging frames (Matthes & Kohring, 2008).

The variety of theoretical and operational definitions of frames makes conducting framing research a challenging task. To at least ensure transparency in terms of theoretical approaches and methods, scholars pursuing framing studies must explicitly indicate which definition of framing they use to identify frames in communication texts. This study uses Entman’s (1993) definition of frames and framing functions to identify how the Chilean government, media, and public framed the 2014 earthquake and tsunami in northern Chile. Entman’s (1993) early definition of framing is probably the most used definition in framing studies, as it has been cited nearly 1,500 times according to a Web

of Science search (Cacciatore et al., 2016). For Entman, frames “highlight some bits of information about an item that is the subject of a communication, thereby elevating them in salience” (Entman, 1993, p. 53). Entman identifies four framing functions: frames define problems, identify causes, offer moral judgments, and suggest solutions.

The *problem definition* function determines what the issue is about and/or what relevant actors are involved. The *causal interpretation* attributes blame for failure or responsibility for success regarding a specific outcome. The *moral evaluation* function evaluates the consequences of the problem: risk or benefit, gain or loss. As such, evaluations can be positive, negative, or neutral. The *treatment recommendation* function suggests solutions and may include a call for or against a certain action (Entman, 1993; Matthes & Kohring, 2008).

Frames may not necessarily include all four functions, and two frames may share the same problem definition, causal analyses, and moral evaluations, while remedies may differ. To Entman (1993), the omission of any of these functions is as critical as inclusions in guiding the reception of a message. Elements not mentioned are left out for a reason, and those reasons are also important to understand how a situation is portrayed.

In order to make this study comparable with the many studies approaching framing from Entman’s perspective, this dissertation inductively searches for elements highlighted by the Chilean government, media, and public, and determines which functions were most prominent in each of the three narratives about the 2014 earthquake and tsunami in northern Chile.

Matthes’ integrative model

In the news production process, journalists and media organizations frame news media content by selecting specific aspects of political and social realities to make them

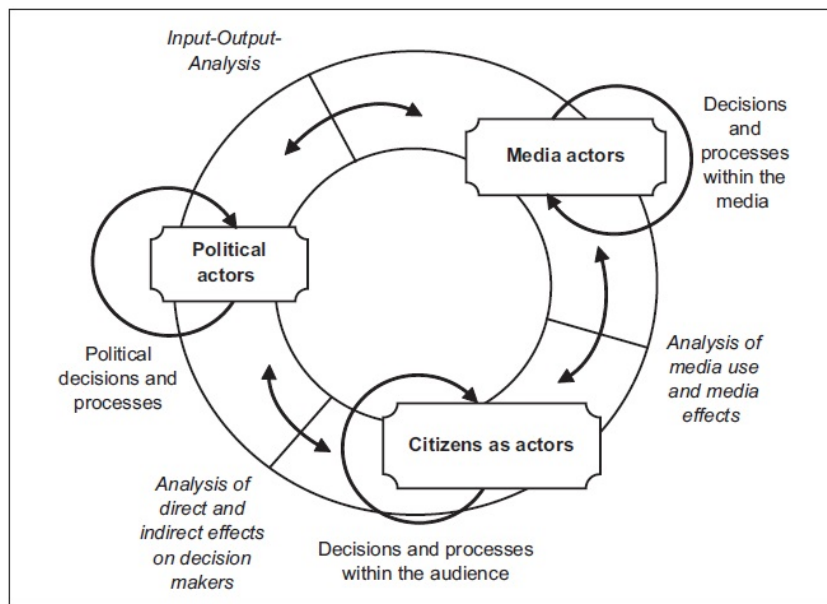
more prominent. These frames are transmitted to audiences who receive the information already interpreted and portrayed congruently with the views of news producers. Frames, however, are located not only in news media content but also in strategic communications of political actors as well as in the minds of citizens (Matthes, 2012). Audiences do not always follow the news media framing when making sense of reality. When exposed to media frames, people refer to their individual frames to organize and interpret incoming information and to draw inferences from that information (Pan & Kosicki, 1993). This involves a cycle where the framing process is negotiated and contested in at least two stages of news content creation – when political actors bring their own frames to the attention of journalists and media organizations, and when news frames compete with previous cognitive elaborations in the minds of citizens to shape their interpretations of issues, candidates and events.

Matthes (2012) proposes an integrative approach to bridge the various stages of framing - from the political elite to the news media and finally to the public. This integrative approach aims for systematic analysis of three perspectives: political actors, media actors, and audience. Each one of these actors is exposed to news frames and, to some extent, is able to produce news frames or to have some influence on the framing process. To empirically apply this approach the research design requires collecting data in these three distinct stages in order to achieve a complex and comprehensive understanding of the framing process as a whole.

Despite the proliferation of framing research, few scholars have simultaneously explored the involvement of these three key actors in the framing process. Various studies have shown how each of them influences the framing of news and is also influenced by the frames of other actors, but only by looking at one or two of these actors at a time. As Matthes (2012) argues, “hardly any research has attempted to draw a

complete picture of the whole framing process” (p. 247) which is essential for allowing “a comparison of framing processes at the communicator level, the news content level, and the effects level” (p. 255). Using Matthes' integrative approach, this dissertation compares how the government, media, and audience framed the earthquake and tsunami in northern Chile during April 2014. Figure 3.1 summarizes the design of Matthes’ integrative approach, which illustrates how the three actors construct, promote and disseminate their frames.

Figure 3.1. The design of the interdisciplinary research project on news framing (Matthes, 2012)



HOW JOURNALISTS AND POLITICAL ACTORS FRAME THE NEWS

Journalists rely heavily on official actors for the construction of news (Cook, 2005), while political elites are constantly bringing news material to the attention of media organizations (Hänggli & Kriesi, 2012). This interdependency “creates a well-

organized symbiotic relationship between reporters and official sources” (Lawrence, 2000; p. 5), who rely on each other to communicate ideas to the public.

Journalists, however, do not simply repeat frames built by institutional voices. Despite their reliance on official sources to report on political events, journalists also shape these events (Entman, 1991). They can take a more active approach by altering existing frames (Callaghan & Schnell, 2001), or by constructing their own frames, what Wagner and Gruszczynski (2016) have called “journalists-sourced frames” – frames reported without a source attached to them.

Existing literature differentiates between institutionally driven news and event-driven news. Institutionally driven news “is cued by official activities in official arenas. It is pegged to institutional news beats, official actors, and institutionally defined decision points” (Lawrence, 2000; p. 8). Conversely, event-driven news requires journalists to report beyond the boundaries of official information, offering the opportunity for unofficial sources to voice their concerns in the news media (Shehata, 2010). Reporters have a higher need to distance themselves from dominant voices when political elites initiate the stories.

The earthquake occurring in Chile during April 2014 presents an interesting case of event-driven news with an intense flow of institutionally driven information. While earthquakes belong to the domain of event-driven news—stories triggered by accidents or disruptive and uncontrolled events (Wolfsfeld & Sheaffer, 2006) —the Chilean government pursued a careful public relations campaign when delivering details about the 2014 earthquake. President Bachelet did not release any information herself until several hours after the earthquake once her team confirmed the risk of tsunami and had a clear number of casualties (*La Segunda*, 2014). Although neither the president nor her ministers referred to the 2010 earthquake in their press releases, the media heavily

emphasized the differences between the two disasters in terms of the government's performance. Consistent with previous research on disaster coverage, Chilean media stepped outside their role of objective observer and assumed a role as judge of those in authority (Littlefield & Quenette, 2007).

Natural disasters are arguably less political than crises such as man-made disasters or terrorist attacks. And yet, they might create an environment of political significance or carry on political implications (Cottle, 2009). The following section explains the characteristics required for a disaster to become a political problem and move onto policy agendas.

Can disasters be political in nature? Causal stories to understand policy problems

When identifying frames and frame functions as defined by Entman (1993), *problem definition* and *causal interpretation* become the main elements to look at in communicating contexts. Any further *moral evaluation* and/or *treatment recommendation* will depend on how the problem is defined and what factors originated it. Stone's (1989) typology of Causal Theories emerges as a suitable approach to focus on problems and their causes.

Stone (1989) analyzed how difficult conditions such as natural disasters, accidents, or other types of crises become political problems that move onto policy agendas. For Stone, a bad condition does not become a problem *until people see it as amenable to human control*, i.e. when bad conditions are attributed to human behavior instead of to accident, fate or nature.

According to Stone, "problem definition is the active manipulation of images of conditions by competing political actors. Conditions come to be defined as problems through the strategic portrayal of causal stories" (Stone, 1989; p. 299). In other words,

somebody wants this situation to become a problem and frames the situation as such. These portrayals can be categorized in four causal theories: accidental causes (such as earthquakes or tsunamis), mechanical causes (like airplane accidents), intentional causes (wars, for instance), and inadvertent causes (poverty or diseases). Figure 3.2 illustrates Stone's typology of causal theories.

Figure 3.2. Stone's (1989) Typology of Causal Theories

		<i>Consequences</i>	
		Intended	Unintended
<i>Actions</i>	Unguided	MECHANICAL CAUSE (nuclear power, chemical plants, airplane accidents)	ACCIDENTAL CAUSE (nature, weather, earthquakes)
	Purposeful	INTENTIONAL CAUSE (public policy when it's positive; oppression and conspiracy when it's negative)	INADVERTENT CAUSE (poverty, diseases, accidents at work)

Stories in the Intentional Cause cell relate to direct human control: There is an actor who is purposively and consciously causing a situation. When consequences are perceived as good, we know this domain as rational action (public policy). When consequences are perceived as bad, we have stories of oppressors and victims (wars, for instance).

In contrast, stories in the Accidental Cause cell are those where there is total absence of human control. There is no one to blame because natural disasters caused by weather conditions or earthquakes cannot be avoided or prevented. Authorities must take care of the situation as well as they can as the public still expects them to cope with the

consequences of a disaster. If they fail, people may attribute responsibility to human causes as those in charge to reduce damage did not react on time.

The Intentional Cause and Accidental Cause cells explain what occurred in Chile during the 2010 and 2014 disasters. Chile is one of the most seismically active countries in the world, where earthquakes continually test the quality of the country's building and infrastructure construction, and the authorities' ability to react on time (Reyes Ortíz, et al., 1986). As described in Chapter 2, an 8.8-magnitude massive earthquake hit central and southern regions of Chile on February 27, 2010. The lack of information about the disaster and the erratic performance of the authorities in their initial assessments caused a social and economic crisis in the main cities, especially in Santiago, the capital city, and Concepción in the southern part of the country. Chilean President Michelle Bachelet and her team failed to release tsunami warnings on time, and they also underestimated the danger of the subsequent waves. Many of those who died did so in the tsunami after receiving a call from the Chilean Navy relaying there was no danger of a tsunami occurring. Moreover, the shortage of basic services (such as water and electricity supplies), the interruption of telephone lines and internet connections, and the inability of citizens to access bank funds provoked episodes of lootings in supermarkets and shops. Further, feelings of insecurity welled up among people (Saldaña & Parra, 2013).

Following Stone's typology of causal theories (1989), the 2010 earthquake in Chile belongs to the accidental category and, as such, no human responsibilities should be involved. Yet in August 2012, a public opinion poll revealed Chilean citizens blamed President Bachelet's government for the earthquake and tsunami consequences: 73% of the respondents attributed legal responsibilities to the authorities for their poor response to the crisis and expected them to be fined or even to go to jail. Similarly, 81% said they would flee from the ocean in case of an earthquake even if the National Emergency

Office indicated no risk of tsunami (Cavallo, 2012). The accidental cause story became one of intentional cause where the problem was seen as being caused by human intervention.

Two years after the poll, the 2014 earthquake struck the north. Chileans already held a negative opinion regarding the government's performance in 2010, and such opinion might have permeated their evaluation of the authorities during the 2014 disaster. Consequently, the public might have been inclined to assign blame to authorities even if the disaster was due to natural causes. Actors seeking to define a problem—in this case, Chilean citizens—will attempt to push the interpretation of a bad condition out of the realm of accident and into the realm of human control (Stone, 1989). At the same time, those blamed for a problem—namely, President Bachelet and her team—will tend to portray the condition as accidental, as caused by someone else, or as one of the indirect forms of causation (Stone, 1989). As such, this dissertation observes how problems were defined by each actor and what causes were identified, in order to understand how Chilean government, media, and public opinion framed the 2014 disaster.

COVERING DISASTER. THE ROLE PLAYED BY THE MEDIA

How journalists cover crises

According to Seeger, Sellnow, and Ulmer (2003), a crisis is an event in time with “high levels of uncertainty, confusion, disorientation, surprise, shock, and stress” (p. 125). Natural disasters are one example of crisis situations – people are disoriented and confused about what to do, and unexpected disasters such as earthquakes and tsunamis can be surprising and shocking. The public turns to the media to find out the scope of the harm and the responses initiated by authorities (Seeger et al., 2003).

The role of the media during catastrophic events is to communicate warnings, provide a description of the situation, keep the public informed after the event, and contribute to individual and community recovery and resilience (Norris et al. 2008; Quarantelli, 1991; Scanlon, 2007). Media outlets also play a critical role “in framing the disaster as a news story, giving the story broader cultural resonance and political and social meaning” (Miller & Goidel, 2009; p. 276).

Disaster news coverage is said to be episodic and event centered (Miller & Goidel, 2009). Episodic coverage focuses on the immediate event and gives little or no context about underlying issues or circumstances regarding said event. Conversely, thematic coverage focuses on the big picture, provides context, and identifies causes. "Episodic reports present on-the-scene coverage of “hard” news and are often visually compelling. Thematic coverage of related background material would require in-depth, interpretive analysis, which would take longer to prepare and would be more susceptible to charges of journalistic bias.” (Iyengar, 1991; p. 14).

Episodic coverage implies disasters are commonly reported as a series of unrelated events, and there is little to no time to prepare in-depth pieces when informing publics about how a crisis unfolds. However, journalists are willing to turn to past events to provide context for current ones. For instance, national media considered Hurricane Gustav as “not as bad as Katrina” when relaying information about the scope of the storm in 2008 (Miller & Goidel, 2009). Similarly, journalists in Taiwan used the 921 earthquake⁵ occurring in 1999 as a benchmark to explain Typhoon Morakot in 2009 (Su, 2012). These findings suggest the media use contextual information to provide background knowledge and imply causality between past and present events (Su, 2012).

⁵ The 921 earthquake was a 7.3-magnitude earthquake occurring in Taiwan on September 21, 1999.

As explained by Lang and Lang: “References to the past in news that is reputedly up-to-date are used as semantic markers – to make connections, to fit an event into a category, and to suggest certain inferences” (1989; p. 126). Therefore, even though disaster coverage is more likely to be episodic than thematic, journalists do use past events as contextual markers when those help understand present ones.

Semetko and Valkenburg (2000) developed five frame categories applicable to a variety of issues: conflict, attribution of responsibility, economic consequences, human interest, and morality. These genres have been widely used in framing analysis as they are supposed to be *generic frames* – frames that offer a systematic platform for comparison across issues and topics (de Vreese, Peter, & Semetko, 2001). Their counterparts are *issue-specific frames* – frames that are pertinent only to specific topics or events (de Vreese, 2005).

Using Semetko and Valkenburg’s frames as a baseline, Yang (2012) proposed six frames applicable to the study of natural disasters: attribution of responsibility, human interest, economic consequences, denial, and rescue/treatment. Yang argued the morality and the conflict frames proposed by Semetko and Valkenburg (2000) are not necessarily applicable to the context of natural disasters, while frames such as denial (not seeing a disaster as a major problem) and rescue/treatment (in terms of official response to a disaster) are a better fit for the study of disaster-related news.

Other studies have also modified Semetko and Valkenburg’s frames. Li (2007) studied how five U.S. television outlets covered the 9/11 disaster using nine categories of framing: political implications, economic impact, crime, environmental impact, safety, human interest, religion, disaster consequences, and other. The religion frame was introduced to identify if the news coverage mentioned Islam or Muslims in the 9/11 narrative. Houston, Pfefferbaum, and Rosenholtz (2012) narrowed Li’s categories and

proposed six frames to study disaster news coverage: political implications, economic impact, environmental impact, human interest, crime, and other.

In general, these studies have found human interest is the most prominent angle to frame disaster-related stories (Houston et al., 2012; Wenger, James, & Faupel, 1980; Yang, 2012), especially in crises involving a large number of casualties (Li, 2007). Studies also show journalists give preference to testimonials and dramatic descriptions of the event over expert analysis (Chouliaraki, 2010; Pellegrini et al., 2015; Ploughman, 1995) as a way to humanize disasters (Scanlon, 2007). Similarly, Houston and her/his colleagues (2012) found both human interest and political impact frames lasted longer in disaster coverage.

Research also indicates disaster coverage is not sustained for long. According to Houston et al. (2012), the media cover disasters for shorter periods of time than they cover other issues. By looking at 11 of the most severe U.S. natural disasters occurring between 2000 and 2010, Houston et al. found disasters are not covered for more than 12 months, a lifespan shorter than the coverage of public issues at 18.5 months. Yet, the authors plainly disclose Hurricane Katrina significantly skewed the average lifespan of disaster coverage. Without Katrina, the average lifespan would be only 178 days. They also found the vast majority of news stories were written in the immediate aftermath of a disaster followed by a rapid decline. In line with these findings, a study about Finnish news coverage of the 2004 tsunami in Sumatra found the coverage, although extensive, started to decline quickly after the immediate disaster (Kivikuru, 2006).

Disaster news coverage is not uniform in nature – studies have shown the same crisis may be reported on differently depending on the scope of the news outlet. National outlets tend to focus on more negative aspects of a disaster, while local sources tend to bring people together (Miller & Robert, 2008). In addition, local outlets from areas

affected by a disaster are expected to cover the event for longer periods of time than national outlets (Houston et al., 2012).

The use of official sources in disaster coverage is yet to be determined. Some studies indicate journalists rely heavily on official sources to obtain information about the disaster (Quarantelli, 1981), while other research found journalists are more open to include unofficial sources in times of crisis allowing ordinary people to express their problems and frustrations (Andsager & Powers, 1999; Pantti & Wahl-Jorgensen, 2011; Shehata, 2010). During the Mumbai attacks in 2008, mainstream media sought material from social media, with journalists monitoring social media to share eyewitness accounts of the events (Bélair-Gagnon, 2013).

Media portrayal of authorities in disaster news coverage

Media portrayal of authorities affects public perception of individuals or groups in authority (Littlefield & Quenette, 2007). If the media evaluate an official response as too slow or inappropriate, audiences might assign blame to those in charge, even in the case of events sans human control. For example, Strömbäck and Nord (2006) studied the Swedish government's response to the 2004 tsunami disaster in Sumatra. The response from Swedish authorities was rather slow and the government was strongly criticized in the media. Findings indicate Swedish citizens were also highly critical of the authorities, echoing the media evaluation of the government crisis management. Similarly, Littlefield and Quenette (2007) explored the portrayal of authority during Hurricane Katrina in 2005. They found the media associated negative terms to the federal government and the Department of Homeland Security. Although this study did not observe the public's evaluation of the authorities, it found the media went beyond their role of objective

observers and assumed a position to blame those in charge for their lack of leadership to deal with the hurricane consequences.

Chilean President Michelle Bachelet also faced the criticism of the media right after the 2010 disaster in southern Chile. As explained in Chapter 2, national newspaper *La Tercera* indicated President Bachelet's government had shown "incomprehensible weakness and slowness" at managing the crisis (*La Tercera*, 2010, March 2), while national newspaper *El Mercurio* called on President-elect Sebastian Piñera to "restore hope" to Chile once he took office two weeks after the disaster (*El Mercurio*, 2010, March 4). In this scenario, the media frames might have negatively affected not only public opinion about the government in 2010, but eventually in 2014 as well.

UNDERSTANDING DISASTER. PUBLIC OPINION AND MEDIA INFLUENCE

Scholars agree on the assumption that individuals constantly struggle to interpret life experiences and to make sense of the world around them (Goffman, 1974). Lipmann himself indicated that politics is "altogether too big, too complex, and too fleeting for direct acquaintance" (1922, p. 16), suggesting citizens rely on others to receive news about national and world affairs. Most people rely upon "the cheapest and most accessible sources: newspapers, radio, and television" (Page, Shapiro, & Dempsey, 1987; p. 24). However, relying on others to learn what is important implies that people's evaluations of issues are influenced by how those issues are framed. Research on framing effects has shown citizens' attitudes can be influenced significantly by how elites frame their communications in the media. By emphasizing certain considerations above others when evaluating an issue, the frame drives audiences to understand that issue in specific ways (Chong & Druckman, 2007).

When disasters occur, people turn to the news media to gain information about these events (Houston et al., 2012). In this audience-media relationship, however, the audience becomes highly dependent on the way the media cover a disaster. Citizens' perceptions of the event are shaped by how the media describe and characterize a catastrophic situation (Sellnow & Seeger, 2013), while shifts in public opinion and policy may be indicative of or influenced by the way the media frame these situations (Iannarino, Veil, & Cotton, 2015). Scholars have recognized the importance of identifying media frames in disaster coverage to understand public opinion about these issues (Miller & Riechert, 2001).

Other literature attributes more agency to the public. Edy and Meirick (2007) propose the concept of *frame adoption* to examine how people interpret public issues. They argue the framing process occurs in a context where public issues are evaluated by the audiences, who structure their thinking and cognitive responses to totally or partially accept or reject political and media frames. "It may be the case that audiences adopt only portions of a frame or even that they combine elements of the competing frames" (Edy & Meirick, 2007; p. 125). This approach, therefore, allows for a more flexible understanding of framing effects on audiences, while at the same time it considers individual context as relevant for the framing process. In other words, media effects will be mediated by people's thoughts and ideas, such as their previous understanding of an issue, and their opinion about it. Chong and Druckman (2013) found that effects of challenging frames depend on how people's attitudes are formed, which in turns depends on how people process information. Those who actively integrate information into judgments tend to develop stronger attitudes, and are more likely to reject frames that challenge their initial attitudes. Similarly, Lecheler and De Vreese (2012) found that framing effects on personal opinion were mediated by belief importance and belief

content, and depended on an individual's level of political knowledge. Shah, Domke and Wackman (2001) found personal issue interpretations mediate the influence of news frames on electoral decision-making strategies. These studies show people are not always affected by the frames they encounter in news media content as other factors also play a role in the framing effects' process.

Previous research indicates crises can overwhelm governments with citizens' demands, risking collapse and eroding legitimacy (Almond & Verba, 1963; Graham & Sukhtankar, 2004; Nel & Righarts, 2008). In the case of natural disasters, causes cannot be attributed to human responsibility (Jennings, 1999) but the public still expects authorities to cope with the consequences of a disaster (Stone, 1989). Citizens who suffer damage in disaster contexts present lower evaluations of democratic institutions, lower support for democratic values and practices, and stronger dispositions toward action (Carlin, Love, & Zechmeister, 2014). As such, understanding how Chilean citizens assessed the government's performance is crucial to address the impact of a natural disaster on public opinion formation.

News comments as a form of public opinion

For Herbst (1998), public opinion should not be understood as the numerical aggregation of people's responses to polls as this aggregation is not particularly useful. Instead, public opinion is socially constructed, and it depends on institutions, technology, and political culture. One's location in the social and political world constrains the ways in which public opinion is evaluated – political actors, journalists, and party activists will have their own conceptions of what public opinion is and how to interpret public sentiment (Herbst, 1998). Simply put, public opinion itself does not exist without the measures we use to represent it (Kreiss, 2016a).

Following this line of thought, this dissertation argues that public conversation in online settings represents a form of public opinion. Tweets, Facebook posts, online news comments, and blog entries are another way to participate in political discourse and may eventually shape public opinion. Previous studies reveal political actors and journalists see online conversations as a representation of public opinion, and they constantly monitor social media sentiment as a proxy for public sentiment (Kreiss, 2016b; Kreiss, Meadows, & Remensperger, 2015).

These new ways of participation could even improve the measures scholars use to study political conversation. Research on informal political conversation suggests surveys might not be the best method to measure this concept as people do not necessarily understand which conversations are “political” in nature, and few surveys explicitly provide a definition of “political” to help their respondents (Eveland, Morey, & Hutchens, 2011). In addition to this problem, people are increasingly unwilling to participate in surveys. If the response rate of a typical telephone survey was 36% in 1997, that rate has decreased to just 9% today (Pew Research Center, 2012). Several reasons explain such a low percentage. First, U.S. federal regulations do not allow robots to call cellphones, only landlines (Klett, 2016). However, 60 percent of Americans use cell phones either most or all of the time, which makes very difficult to reach this segment of the population (Graff, 2016). Second, today’s lifestyle makes people harder to contact. People are busier than before, and less likely to participate in surveys (Desilver & Keeter, 2015). And third, available technology—such as caller ID—“makes it easier for people to ignore phone calls coming from unknown telephone numbers” (Desilver & Keeter, 2015; p. 15), which also undermines the response rate and therefore, the accuracy of the sample. These trends are a problem not only in the U.S., but also in many other nations (Desilver & Keeter, 2015; Pew Research Center, 2012).

Some scholars are trying to find alternative ways to represent what people do, think, and feel. Scott Keeter, director of survey research at Pew Research Center, highlights the need of combining surveys with other forms of data collection that do not involve interviews to improve the techniques currently used to measure public opinion (Desilver & Keeter, 2015). Other scholars have already found alternative techniques, such as using online discourse to represent people's opinions and thoughts: "Social media platforms provide a new socio-technical means of producing and representing public opinion, and it is more dynamic, interactive, and continuously unfolding than other means, such as surveys" (Kreiss, 2015; p. 2). What people do on social media and online forums is conducted in public and represented as public opinion by journalists and political elites. Taking this perspective as a baseline, this dissertation treats online news comments as a proxy for public opinion.

Yet, social media and online comments are not, by any means, a "perfect" form of public opinion. Twitter, for example, represents a fraction of the online public, and news comments are posted by only a fraction of newsreaders (Chen, 2017). But while surveys were traditionally seen as public opinion, the issues described above undermine the reliability and validity of this method. In other words, surveys are not necessarily better than public conversations online to represent public opinion.

News comments as a space for public deliberation

Deliberative theory suggests citizens share information and consider other people's opinions to discuss the important political issues of the day (Eveland et al., 2011). Thus, public deliberation fosters people's participation in the democratic process allowing everyone to participate in the discussion without limiting the debate to just a few (Chen & Lu, 2017).

Comments posted in response to news stories, whether on a Facebook page or in a comment section below the story, are supposed to enhance public deliberation. This involves people exchanging views on a matter of public importance in a respectful manner, reasoning through their claims, and listening to the perspectives of others (Price, 1992). According to Manosevitch and Walker (2009), comments to online articles “have the potential to promote public deliberation in a number of ways” (p. 6), particularly by representing a wider range of opinions and by providing the possibility of interaction between readers and journalists. Reporters themselves are becoming more comfortable with online comments and often engage with commenters to foster deliberative discussions or quell incivility (Chen & Pain, 2017).

Previous research acknowledged the potential of posting news comments to serve as a space for public deliberation. Springer, Engelmann, and Pfaffinger (2015) consider news comments as a valuable space for the interchange between addressee and speaker. Graham and Wright (2015) see news comments as a place where audiences discuss news content with each other and journalists. Toepfl and Piwoni (2015) found news comments allow for counterpublic spheres to emerge where individuals have a key opportunity to contest the narratives of mainstream public spheres such as the media or political elites. Other research has found people are more likely to discuss issues beyond the realm of the actual disaster, because these events trigger ongoing political tensions, debates and projects, what Cottle (2006) calls “mediatized conflicts.” These studies illustrate not only the importance of news comments for citizens to discuss current affairs, but also their potential to shape public discussion and journalism practice allowing the introduction of counterelements into mainstream discourse.

Online settings have become the space where people talk about many issues, including politics and the news. As in everyday life, disagreement may arise, as well as

incivility. Disagreement does not imply incivility though. As stated by Chen (2017), for a message to be uncivil, it must include “at least one of three main attributes: insulting language or name calling; profanity; and a larger category that encompasses stereotypes, and homophobic, racist, sexist, and xenophobic terms that may at times dip into hate speech” (p. 6). Uncivil messages violate what is considered normal in conversation and have the potential to cause harm (Chen, 2017). But despite the levels of incivility observed in news comments (Coe, Kenski & Rains, 2014; Chen, 2017) that might lead to negative emotions and escalating verbal aggression (Chen & Lu, 2017), comments have proven to be a feasible space for people to exchange opinions (Manosevitch & Walker, 2009). When people get involved in public discussions, especially cross-cutting discussions, they have the chance to get exposed to information they did not have in their internal repertoire, increasing their levels of political knowledge and elaboration. Previous research has shown that individuals with higher levels of political knowledge and willingness to discuss are more likely to engage in participatory behaviors, contributing, in consequence, with a healthy democracy.

RESEARCH QUESTIONS AND HYPOTHESES

This dissertation employs a mixed-method approach to study how the government, media, and public framed the 2014 earthquake and tsunami in northern Chile. First, I explore the themes emphasized by the three framing actors when informing, covering and discussing the disaster. Previous research identified the human-interest angle as the most common theme in disaster news coverage (Houston et al., 2012; Wenger et al., 1980), but more research is needed to identify common themes in official information and online political discussion about natural disasters. Then, this study makes inquiry regarding the following:

RQ1: What were the dominant themes in a) the news stories, b) government press releases, and 3) online news comments about the 2014 earthquake and tsunami in northern Chile?

The first set of hypotheses predicts how the media covered the 2014 disaster in northern Chile. News in general is by definition timely, and people want to know what is happening right now (Lee et al., 2005). Disaster news, in particular, is even more immediate and not sustained for long, as most of the news stories are often written in the immediate aftermath of the disaster (Houston et al., 2012; Kivikuru, 2006). As stated by Shoemaker and Reese (2014), media routines do not develop randomly – they are the outcome of recurring patterns of news and ensure journalists will respond in predictable ways. As such, it is safe to expect the coverage of the 2014 disaster followed established media routines, such as timeliness and proximity (Shoemaker & Reese, 2014). Consequently, this dissertation predicts:

H1: Most of the stories covering the 2014 earthquake and tsunami in northern Chile were published in the days immediately after the disaster.

This dissertation compares news stories published in the websites of local newspaper *El Longino* and national newspapers EMOL, *La Tercera*, and *La Nación*, to observe how local and national media covered the 2014 disaster. Studies have found the scope of a news outlet affects the way disasters are portrayed (Miller & Robert, 2008); as well as the lifespan of the coverage – disaster coverage tends to last longer in local outlets (Houston et al., 2012). Therefore, this study predicts:

H2: The local newspaper El Longino covered the 2014 earthquake and tsunami in northern Chile for a longer period of time as compared to national newspapers EMOL, La Tercera, and La Nación.

Previous studies have found national outlets tend to focus on more negative aspects of a disaster, while local sources tend to bring people together (Miller & Robert, 2008). Based on these findings, this study predicts:

H3: a) When covering the 2014 earthquake and tsunami in northern Chile, topics emphasized by national newspapers EMOL, La Tercera, and La Nación were significantly more negative than those emphasized by local newspaper El Longino, while b) topics emphasized by El Longino were more focused on people's needs.

The following set of hypotheses and research questions explores potential differences between the media and government regarding disaster coverage. The way the Chilean government portrayed its own performance, as well as the disaster consequences, was measured by analyzing government press releases. Although the media rely on official sources to report disaster characteristics, crisis events allow media actors to be more critical of the authorities by reporting on the appropriateness of the official response (Strömbäck & Nord, 2006; Littlefield & Quenette, 2007). Then, themes emphasized in government press releases might not be in consonance with themes emphasized in the disaster-related news stories. Thus, this dissertation predicts:

H4: The topics covered by the newspapers El Longino, EMOL, La Tercera, and La Nación were significantly different from the topics emphasized in the government press releases regarding the 2014 earthquake and tsunami in northern Chile.

Houston et al. (2012) found the human-interest angle and the political implications of a crisis are themes covered for longer periods of time in disaster news coverage. Then, one would expect those angles to last longer in the media coverage of the 2014 disaster. As this dissertation observes not only media themes but also government themes, not enough information is available to predict what topics lasted longer in the government press releases. Consequently, this study asks:

RQ2: What themes were covered for a longer period of time?

The next set of hypotheses and research questions addresses the use of past events to understand current issues. As explained above, the media use contextual information to provide background knowledge and imply causality between past and present (Su, 2012). As such, journalists turn to past events to provide context for current ones (Miller & Goidel, 2009). In 2010, President Bachelet and her team were highly criticized by both the media and the public for their crisis-management skills during the 27/F disaster. In 2014, some journalists used the 27/F disaster as a benchmark when reporting the 2014 earthquake and tsunami occurring in the north. Then, bringing the 2010 disaster up for comparison may have been driven not only by the desire to increase the quality of the disaster coverage, but instead by political attempts to expose past mistakes made by Bachelet's government. As described above, *La Tercera* (right wing) has been more critical of Michelle Bachelet's government as compared to *El Mercurio* (also right wing) (Navia, Osorio, & Valenzuela, 2013), and it has also been more favorable to Sebastián Pinera (Navia & Osorio, 2015). *La Nación*, on the other hand, is said to be closer to the center-left coalition that supports President Bachelet. As stated by Gitlin, (1980), news content is permeated and driven by the political ideology of each news outlet. Consequently, this study expects mentions of the 27/F disaster to be related to how adversarial an outlet is to President Bachelet's government.

H5: The more adversarial the outlet was to President Bachelet's government, the more the outlet's coverage used the 27/F disaster as a benchmark to explain the 2014 earthquake and tsunami in northern Chile.

In contrast, one would expect the government not to mention the disaster in 2010 when reporting on the actions taken to deal with the consequences of 2014 earthquake. As this dissertation uses press releases from different offices and ministries, it might be

the case that some offices publically disseminated information on the things done differently in 2014 as compared to 2010. Then, this study asks:

RQ3: Did the government mention the 2010 earthquake in southern Chile when explaining the actions taken during the 2014 earthquake and tsunami in northern Chile?

The following set of hypotheses and research questions focuses on the themes emphasized by Chilean public opinion—embodied by news readers’ comments—when discussing the disaster-related stories. This dissertation proposes two competing hypotheses to understand the media-public opinion relationship. On the one hand, research indicates public opinion is affected by the media – citizens’ perceptions are shaped by how the media describe and characterize a catastrophic situation (Sellnow & Seeger, 2013). Consequently, this dissertation predicts the online conversation about the 2014 disaster echoed the themes emphasized by the media. Therefore:

H6: Topics emphasized by the media when covering the 2014 disaster were positively correlated with topics discussed in the online conversation.

Conversely, other research attributes more agency to the public, assuming audiences are able to introduce alternative narratives in the conversation. Literature on counterpublic theory argues comments on websites are a space to react against hegemonic mainstream public spheres (Toepfl & Piwoni, 2015), and people are more likely to discuss issues beyond the realm of the actual disaster (Cottle, 2006). Then:

H7a: Topics discussed in the online conversation differed from topics emphasized by the media.

H7b: Topics discussed in the online conversation went beyond the realm of the 2014 earthquake and tsunami.

Research has shown that just as journalists do, citizens use information from past events to make sense of present reality (Su, 2012). It is possible the memories of the 2010

earthquake and tsunami were brought to the online conversation regarding the 2014 disaster. Given the public's negative evaluation of governmental actions in 2010, Chilean public opinion could have boosted those evaluations when discussing the government's performance in 2014. Although this dissertation does not measure people's ideology or partisan preferences, the ideology of a news outlet might attract readers with a similar ideology or political preferences corresponding with the paper's political orientation. Under this assumption, this dissertation predicts:

H8: The more adversarial the outlet is to President Bachelet's government, the more its news readers will use the 27/F disaster as a benchmark to comment on the 2014 earthquake and tsunami in northern Chile.

The last research question refers to the framing functions used in the narratives of the three actors of the framing process. This dissertation inquires:

RQ4: How did a) the media, b) the government, and c) the public frame the 2014 disaster?

METHODS

Chapter 4. A mixed-methods approach for the study of frames

This dissertation analyzes how the three actors of the framing process – the government, the media, and the public – framed the 2014 earthquake and tsunami in northern Chile. Through a mixed-methods approach—an inductive, quantitative analysis of news stories, government press releases, and online news comments, combined with qualitative textual analysis and interviews with journalists—this study seeks to identify what themes were emphasized by the government, media, and public when informing, covering and discussing the disaster.

Broadly speaking, a mixed-methods approach combines qualitative and quantitative methods to achieve holistic understanding of the object under examination. It is defined as “an approach to knowledge (theory and practice) that attempts to consider multiple viewpoints, perspectives, positions, and standpoints (always including the standpoints of qualitative and quantitative research)” (Johnson, Onwuegbuzie, & Turner, 2007; p. 112). Some scholars view mixed methods as the third research paradigm together with the quantitative and qualitative research paradigms (Johnson et. al., 2007).

The use of mixed methods in a study allows for the achievement of triangulation. Triangulation is the combination of different elements to study a phenomenon: different datasets, different methods, different theories, and even different researchers, in order to ensure that multiple perspectives are used to interpret the results of a study (Denzin, 1978). The benefits of triangulation are many: obtaining thicker, richer data; achieving robust, more reliable results; uncovering contradictions that would not be detected if only one perspective was employed (Jick, 1979). Thus, this dissertation triangulates data and methodologies to study a natural disaster from the perspective of the government, media,

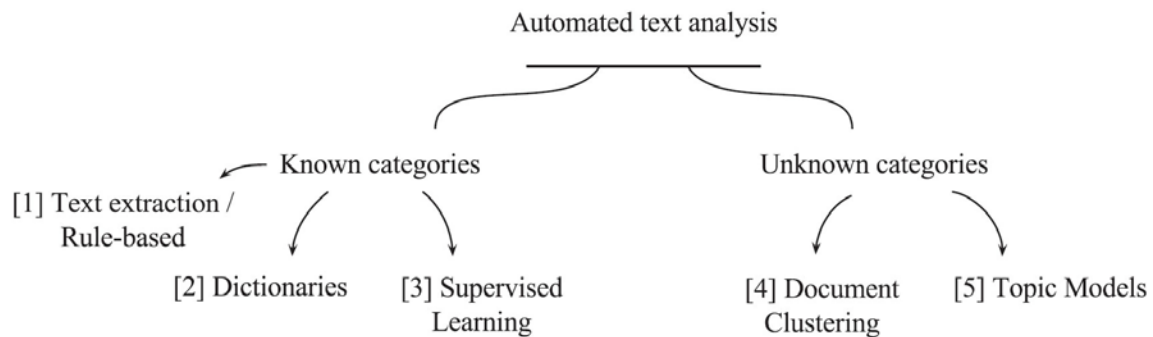
and public in Chile during April 2014. The following sections describe the methods triangulated in this study: topic modeling, qualitative textual analysis, and interviews, as well as the datasets triangulated for the analysis: news stories, government press releases, and online news comments.

TOPIC MODELING

This dissertation conducts an inductive, quantitative analysis called topic modeling to identify how the government, media, and public framed the 2014 earthquake and tsunami in Chile. Topic modeling is defined as “an exploratory technique, useful for imposing order upon large bodies of textual data and for discovering information that helps analysts see beyond their priors.” (DiMaggio et al., 2013; p. 582). This technique provides useful tools for analyzing and understanding the latent structure of large collections of text extracting meaningful themes from text corpuses (Blei, 2008).

Topic modeling belongs to the automated text analysis methods family. Günther and Quandt (2016) split this family into two branches: automated analysis that requires researchers to define categories *a priori* versus automated analysis where categories are unknown and emerge inductively from the data. Figure 4.1 illustrates different text analysis methods grouped according to Günther and Quandt’s (2016) classification.

Figure 4.1. Overview of common automated text analysis methods (Günther & Quandt, 2016).



As shown in Figure 4.1, document clustering and topic modeling are the two most common techniques to inductively analyze text (Günther & Quandt, 2016). Both techniques assume a latent structure of themes in a document collection based on word frequencies and co-occurrences. The analysis aims to discover links between documents and create categories to classify them. Document clustering allocates documents into thematic groups or clusters, allowing each document to belong to only one cluster. Topic models, in contrast, calculate the probability of a document to belong to a certain topic, allowing multiple topics per document (Günther & Quandt, 2016).

Topic modeling treats large collections of text as observations that arise from a generative probabilistic process that includes hidden variables which in turn reflect the thematic structure of a text. Initially, the analysis looks for similar words and how they interrelate, discovering the co-existence of different topics in the same text (mixed-membership models). Initially introduced by Blei, Ng and Jordan (2003), the analysis is based on the algorithm of Latent Dirichlet Allocation (LDA). The modeling process assumes there are hidden topics in textual bodies, and each topic is formed by some specific words occurring together more frequently than one would expect by chance. The

algorithm behind LDA analyzes the corpora to simultaneously estimate the topics, words associated with each topic, and how the analyzed documents exhibit such topics (DiMaggio et al., 2013). LDA inference produces a set of topics and an estimate of topic proportions for each document as well as to which topic each observed word is assigned (Blei, Ng, & Jordan, 2003).

This method has proven to be more efficient than other automated text analysis techniques to extract topics from media content. For example, Guo et al. (2016) analyzed 77 million tweets about the 2012 U.S. presidential election. By comparing topic modeling with dictionary-based analysis, they found LDA models were able to interpret more tweets and reveal more nuanced details of the conversation than the dictionary-based approach. Given the large amount of data the authors analyzed, the number of words in the content was beyond the limited vocabulary on which the dictionary-based analysis relied. Topic modeling does not require an initial word list, as the algorithm works with the words contained in the data. Then, the LDA analysis identified more topics that were salient in the tweets.

Under LDA, a document is represented as a mix of topics (termed mixed-membership modeling), but such topics are not correlated, and word and document order are not relevant (the “bag-of-words” assumption⁶). Further, the modeling process does not consider any variable or document characteristic to fit the model.

To account for these limitations, scholars have implemented several extensions to LDA over the last several years. Rosen-Zvi, Griffiths, Steyvers and Smyth (2004) introduced *Author-Topic Models* to account for the influence of personal writing style. Blei, Griffiths, Jordan, and Tenenbaum (2003) developed *Hierarchical Topic Models* to

⁶ The “bag-of-words” representation assumes a document is a bag of words where syntax, narrative, or word location are not relevant. LDA estimates models by looking at word co-occurrence patterns across the corpus of bags disregarding language complexity (Mohr & Bogdanov, 2013).

find a hierarchy of topics in document collections. Blei and Lafferty (2006) introduced *Dynamic Topic Models* to observe whether topics change over time, and soon after that, they developed *Correlated Topic Models* (CTM) which allows topics to be correlated (Blei & Lafferty, 2007).

More recently, Roberts, Stewart and Tingley (2014a) developed *Structural Topic Modeling* (STM). Also building upon LDA, STM incorporates information about the document (such as author or date) to estimate more accurate models. The inclusion of such information in the form of covariates allows the model to borrow strength from documents with similar covariate values when estimating the document-topic proportions (Roberts, Stewart, & Airolidi, 2016). Besides LDA, STM builds on the *Dirichlet-Multinomial Regression Topic Model* (DMR) by Mimno and McCallum (2008), and the *Sparse Additive Generative Text Model* (SAGE) by Eisenstein, Ahmed, and Xing (2011). Both DMR and SAGE incorporate general covariate information into topic models. In a comparison between STM versus LDA, DMR and SAGE, Roberts et al. (2016) found STM consistently outperformed all other models when estimating a more predictive solution. It also provided more interpretable quantities of interest because it allows correlations between topics (similar to Blei & Lafferty's correlated topic models). Thus, this dissertation applies STM to identify the most salient topics in the media coverage, government information, and online discussion regarding the 2014 earthquake and tsunami in northern Chile.

Fitting topic models

Before estimating the model that best fits the data, several preprocessing steps must be conducted (for an overview, see Manning, Raghavan, & Schütze, 2009). Typically, the text is normalized by removing punctuation and transforming all words to

lowercase. “Stop words” (such as articles, conjunctions, or forms of the verb “to be”) are removed from the text. “Stemming” removes the endings of conjugated verbs or plural nouns, leaving just the “stem” for the analysis (Lucas et al., 2015). Once data preprocessing is done, topic models are estimated. According to Blei (2012), “the model algorithmically finds a way of representing documents that is useful for navigating and understanding the collection” (para.2). Yet, it is the researcher’s task to calibrate the model in order to make meaningful sense of the findings (Jacobi, Atteveldt, & Welbers, 2016).

In LDA-based models (such as CTM or STM), the modeling requires a specific number of topics (K) before running the analysis. In other words, the researcher must decide *a priori* the appropriate K number of topics. There is no right answer for K – it will depend on the volume of the corpora, the variance in the content, and the questions a researcher aims to answer. Larger collections of text will require a solution with more topics to capture all themes covered. Text corpora with homogeneous content (for instance, stories published in the political section of a newspaper) will require less topics than heterogeneous corpora (news stories published in the entire newspaper). If the purpose of the study is to identify broad trends, a solution with less topics will be more parsimonious than one with more fine-grained representations of the data.

Roberts and colleagues (2014a) provide some guidelines depending on the volume of the dataset: For short, homogenous corpora, 3 to 10 topics is a useful starting range. In a sample of 318 news articles, Shahin (2016) estimated a 6-topic solution to explain how the “right to be forgotten” concept was covered in U.S. and British media. For small corpora (a few hundred to a few thousand documents), 5 to 50 topics is a good range. DiMaggio et al. (2013) analyzed almost 8,000 news articles to study the coverage of U.S. government arts funding and estimated a 12-topic model as the best solution to fit

their data. For larger corpora it is application specific. Günther and Domahidi (2017) estimated a 145-topic model to describe the development of research topics in the field of Communication using more than 15,000 abstracts from communication journal articles. Thus, the appropriate number of topics must be initially determined and subsequently redefined after running the algorithms several times, specifying a different number of topics each time until arriving at the solution that is the best fit for the data (Ring, 2013).

Identifying the best model

Deciding between two topic models—for instance, a 30-topic solution and a 35-topic solution—is also the researcher’s task. The best solution will be the one providing a more meaningful interpretation of the document structure in the collection. To this end, topics must be carefully inspected. This dissertation uses two parameters to inspect topics in different models: most prominent words and most prominent documents.

Most prominent words are defined in terms of probability and exclusivity. High-probability words are the most probable words under a given topic based on their frequency of co-occurrence within documents. Exclusive words are top words for that topic that are unlikely to appear within top words of other topics (Roberts et al., 2014a).

Most prominent documents are documents highly associated with a topic. Such documents contain high proportions of the topic and represent accurate examples of what the topic is about (Roberts et al., 2014a). Together, most prominent words and most prominent documents are useful parameters to evaluate topic models, and identify the best solution to meaningfully answer the research questions of the study.

DATA COLLECTION

Media outlets

To identify media topics and frames, news stories about the 2014 earthquake and tsunami were retrieved from the websites of four Chilean newspapers. The decision of selecting newspapers instead of other types of media organizations (such as TV networks or radio stations) was made based on both information availability and importance of print press in the country. Transcripts of U.S. television and radio newscasts are available through academic databases (such as Factiva or LexisNexis Academic), but this is not the case for Chilean television/radio. Chilean newspapers, in contrast, typically keep news archives where stories can be downloaded from. Newspapers are also the most important agenda setters in Chile and the most frequently used source for political information (Godoy & Gronemeyer, 2012).

Following the parameters of DiMaggio et al. (2013), newspapers were chosen based on three criteria: (a) availability for automated search; (b) prominence; and (c) ideological and geographic diversity. Thus, four Chilean newspapers that allow for automated search and represent different ideological perspectives were selected. To ensure prominence, two of these outlets are the most important newspapers in the country. To ensure geographic diversity, one of the papers is a regional outlet located in northern Chile.

The concentration of print media ownership in Chile is said to be a unique case (Gronemeyer & Porath, 2015; Mönckeberg, 2009), as Chile faces a duopoly structure where two companies located in Santiago⁷, *El Mercurio S.A.P* and *Consortio Periodístico S.A. (Copesa S.A.)*, dominate the Chilean print media market (Navia & Osorio, 2015).

⁷ Santiago is the capital city of Chile.

Historically associated with the political right-wing (Arancibia & Montecino, 2013), *El Mercurio S.A.P* belongs to the powerful, ideologically conservative Edwards family (Sorensen, 2011). Its owner, Agustín Edwards, collaborated with the CIA to destabilize Salvador Allende’s socialist government in the early ‘70s and supported the military coup in 1973 (Herrero, 2014). Once Augusto Pinochet took power, *El Mercurio* (the flagship newspaper of the company) openly supported the dictatorship, and its journalists worked with Pinochet’s secret police fabricating stories to explain the deaths and disappearances of political prisoners (Sorensen, 2011). Previous research found news stories published by *El Mercurio* present greater ideological bias against Michele Bachelet as compared to other Chilean presidents (Navia & Osorio, 2015).

Copesa S.A. is also associated with the political right and said to be supportive of conservative values (Gronemeyer & Porath, 2015; Mönckeberg, 2009). *La Tercera*, the flagship newspaper of the company, tends to be more critical of the center-left coalition that supports President Michelle Bachelet as compared to *El Mercurio* (Navia, Osorio, & Valenzuela, 2013). It has also been more critical than *El Mercurio* when covering presidents from the center-left wing, and more favorable to President Sebastián Pinera (right-wing) (Navia & Osorio, 2015). Together, these two newspapers are said to be the main disseminators of the political and economic thinking of the Chilean right-wing (Navia, Osorio, & Valenzuela, 2013), have a strong focus on political coverage (Mellado & Van Dalen, 2017), and have the greatest influence on both public opinion and media agenda in the country (Gronemeyer & Porath, 2017).

Another source of political information is *La Nación*. It used to be state-owned and funded through a mix of state subsidy and commercial advertising. As a government-owned newspaper, “its editorial line was subject to change whenever a new President from a different political party was in office” (Sorensen, 2011, p. 410). Consequently, *La*

Nación was seen as a left-wing source between 1990 and 2010, when the center-left coalition ruled the country until President Sebastián Piñera took office. In 2010, Piñera decided to remove all funding for the print version of the newspaper, and *La Nación* became an online-only outlet (Sorensen, 2011). In 2013, the newspaper was sold to a private company, *Comunicaciones Lanet S.A*, which has slowly reduced the staff and the scope of the outlet (journalist from *La Nación*, personal communication, 10 April 2017). Despite it not being one of the current main news outlets in Chile, it was included in the analysis to bring a different political perspective.

For the purposes of this dissertation, news stories published by the online version of *El Mercurio*, EMOL⁸ (from *El Mercurio S.A.P*), and *La Tercera* (from *Copesa S.A.*) were retrieved in order to represent the two most important news conglomerates in the country. To achieve a broader political representation, the analysis also includes stories retrieved from *La Nación*. To enhance geographic diversity, the analysis includes stories published in an Iquique newspaper, *El Longino*, which has a regional scope in northern Chile, and it served as the main source of information in the areas struck by the earthquake. In addition, *El Longino* does not belong to either *El Mercurio S.A.P* or *Copesa S.A.*, contributing also to a broader political representation in the sample.

Stories were found by using the search terms “earthquake,” “tsunami,” “Iquique,” “Arica,” and “April 2014.” Every story retrieved via these keywords was analyzed, generating a census of stories published by the four newspapers included in this study. Iquique is the capital city of the Tarapacá Region in northern Chile, while Arica is the capital city of the Arica and Parinacota Region, located south of the border with Peru. These two regions were the areas most affected by the earthquake. The time period for

⁸ EMOL is the acronym for *El Mercurio On Line*.

data collection was conducted one month since the occurrence of the earthquake on April 1 (from April 1 to April 30, 2014). Table 4.1 summarizes the stories retrieved from each newspaper in the analyzed time frame.

Table 4.1. News stories retrieved for this study, by source.

<i>Newspaper</i>	<i>Number of stories</i>	<i>Number of words</i>	<i>Word average by story</i>
EMOL	187 stories	72,993 words	390 words
<i>La Tercera</i>	196 stories	88,043 words	449 words
<i>La Nación</i>	100 stories	33,679 words	337 words
<i>El Longino</i>	222 stories	78,562 words	354 words
Total	705 stories	273,277 words	388 words

Political sources

To identify government topics and frames, official press releases were retrieved from the website of 14 ministries directly involved with the earthquake’s consequences; the National Emergency Office (ONEMI, from the initials in Spanish); *Prensa Presidencia* (Chilean Presidency Press Office), and the local government of the two regions most affected by the earthquake – e Tarapacá Region, and the Arica and Parinacota Region. The time period for data collection was also one month since the occurrence of the earthquake on April 1 (from April 1 to April 30, 2014), in order to get comparable text corpora to estimate both political and media topics/frames. Table 4.2 summarizes the stories retrieved from each ministry/office in the analyzed time period.

Table 4.2. Government press releases retrieved for this study, by source.

<i>Ministry</i>	<i>Number of press releases</i>	<i>Number of words</i>	<i>Word average by document</i>
Ministry of Public Works	21 press releases	17,761 words	846 words
Ministry of Housing & Urban Planning	18 press releases	8,755 words	486 words
Ministry of Social Development	11 press releases	4,760 words	433 words
Ministry of Economy, Development and Tourism	10 press releases	3,288 words	329 words
Ministry of Home Affairs & Public Security	8 press releases	3,725 words	466 words
Ministry of National Assets	8 press releases	2,957 words	370 words
Ministry General Secretariat of Government	7 press releases	2,675 words	382 words
Ministry of Agriculture	6 press releases	3,015 words	503 words
Ministry of National Defense	4 press releases	2,597 words	649 words
Ministry of Transportation & Telecommunications	3 press releases	1,115 words	372 words
Ministry of Labor and Social Security	3 press releases	1,693 words	564 words
Ministry of Health	2 press releases	1,108 words	554 words
Ministry General Secretariat of the Presidency	1 press releases	373 words	373 words
Ministry of Energy	1 press releases	142 words	142 words
<i>Prensa Presidencia</i>	6 press releases	2,264 words	377 words
National Emergency Office (ONEMI)	4 press releases	1,948 words	487 words
Arica and Parinacota Government	42 press releases	13,863 words	330 words
Tarapacá Government	19 press releases	7,774 words	409 words
Total	174 press releases	79,813 words	459 words

Public opinion

This dissertation uses online news comments—the opinion expressed by online news readers commenting news stories—as a proxy for public opinion. When Facebook developed the “Comments box” in 2011, a tool to embed people’s comments on third-party websites by using their Facebook profiles, online news organizations turned to this tool immediately. Each time a user leaves a comment on a news story, it will be cross-posted to the user’s Facebook news feed with a link to the story. This allows other users to post replies either on the individual’s Facebook wall or on the news website attracting

more visitors, achieving a higher quality of discussion, and getting a significant increase in referral traffic (Sonderman, 2011).

By using this tool, there are some validity issues to address. Despite the high penetration of Facebook and other social media platforms in Chile (Saldaña et. al., 2016), it would not be accurate to say everyone in the country has gotten a Facebook profile. Consequently, it would not be accurate to claim that findings from this dissertation represent how the entire Chilean population discussed the news about the earthquake and the government's performance. Similarly, by the time the earthquake occurred, *La Nación* and EMOL used the Facebook Comments box for their users to comment on the stories, but *La Tercera* allowed news readers to comment by simply signing up on the website⁹. Therefore, using online comments might not be the best, most representative way to measure public opinion, but considering the lack of surveys or any other instrument to illustrate what people thought or commented about the 2014 earthquake, online news comments emerge as a useful tool to observe the online discussion posted to the earthquake-related stories. All comments posted at the end of each¹⁰ of the analyzed news stories were retrieved for topic modeling and qualitative textual analysis. Table 4.3 summarizes the characteristics of comments retrieved from each newspaper in the analyzed time period (from April 1 to April 30, 2014).

⁹ As of July 2017, online news readers may post comments to *La Tercera* by signing up on the website and also by using their Facebook or Twitter profiles.

¹⁰ Except for the stories published by *El Longino*, as this newspaper does not allow user comments.

Table 4.3. Online news comments retrieved for this study, by source.

<i>Newspaper</i>	<i>Number of stories</i>	<i>Percentage of stories with comments</i>	<i>Number of comments</i>	<i>Comment average by story</i>	<i>Number of words</i>	<i>Word average by comment</i>
EMOL	187 stories	79%	2,495	17	153,764	62
<i>La Tercera</i>	196 stories	49%	1,412	15	67,171	48
<i>La Nación</i>	100 stories	64%	261	4	11,657	45
Total	483 stories	64%	4,168	13.5	232,592	56

VARIABLES AND DATABASE BUILDING

In order to make meaningful comparisons among the three datasets in this study—news stories, press releases, and news comments—all collected data were entered into an SPSS spreadsheet. Each case in the spreadsheet is a document that can be either a news story or a press release. The media dataset (local and national media) contained 705 news stories, while the government dataset contained 174 press releases. Consequently, the SPSS spreadsheet contained 879 cases (stories + press releases).

Two variables were used to identify each document: an “ID number” variable (from 1 to 879) and a “Document content” variable that encompassed the actual content of the story/press release. The entire content of the document was entered in one cell of the “Document content” variable.

Five more variables were created to characterize each document. An “Outlet” variable with five categories indicating where the document was published (EMOL, *La Tercera*, *La Nación*, *El Longino*, Government); a “Source” variable with three categories indicating the source type (National media, Local media, Government); a “Date” variable indicating the day of April 2014 when the document was published (from 1 to 30); a “Week” variable to divide the earthquake-related coverage in four weeks (Week 1, Week

2, Week 3, Week 4); and a “Coverage” variable with two categories: Immediate coverage (from April 1 to 6, 2014) and Subsequent coverage (from April 7 to 30, 2014).¹¹

The public opinion dataset contained 4,168 online news comments. The local outlet *El Longino* and the government websites did not allow posting comments below the stories/press releases. Consequently, news comments in this study came from the 483 stories published by the national newspapers EMOL, *La Tercera*, and *La Nación*. There were 308 stories (64%) with at least one comment posted by news readers. Comments were added to the SPSS spreadsheet by creating two variables: a “Number of comments” variable, indicating the number of comments posted to each story, and a “Comment content” variable where the content of all comments posted to a story was entered in a cell. If a story received no comment, a zero was entered in the “Number of comments” variable, and no data were entered in the “Comment content” variable. If a story received 10 comments, “10” was entered in the “Number of comments” variable, and the content of the 10 comments was entered in the “Comment content” variable. Documents coming from both *El Longino* and the government had no data in the “Number of comments” and “Comment content” variables due to not allowing comment posts. Figure 4.2 illustrates rows and columns in the SPSS spreadsheet described above¹².

¹¹ For a detailed description of variable means and proportions, see the Results Overview in Chapters 5 and 6.

¹² Figure 4.2 is a screenshot of the original SPSS spreadsheet used in this study. Therefore, the content of documents and comments is written in Spanish.

Figure 4.2. Screenshot of the database created for this study (part 1).

ID_number	Document_content	Outlet	Source	Date	Week	Coverage	Num_comm	Comment_content
1	Alarma en Perú por terremoto en Chile: Armada de ese ...	EMOL	National media	1	Week 1	Immediate	5	Soy conductor de ómnibus internacional va circul...
2	Terremoto en el norte de Chile también fue percibido en ...	EMOL	National media	1	Week 1	Immediate	11	Qué amargo. a nuestros hermanos de chile les br...
3	Ecuador decretó alerta roja de tsunami por terremoto en...	EMOL	National media	1	Week 1	Immediate	1	Todos los países toman medidas antes de que qu...
4	Preocupación se extendió en toda la costa del Pacífico ...	EMOL	National media	1	Week 1	Immediate	1	SIN LUGAR A DUDAS ; SOMOS UN PAIS DE M...
5	Fiscalía de Iquique confirma que no hubo saqueos ni det...	EMOL	National media	1	Week 1	Immediate	9	Excelente!!!! Noticia Por ser buena nadie la com...
6	Papa Francisco expresa honda pena por víctimas del ter...	EMOL	National media	1	Week 1	Immediate	2	Dios no ama a Chile !!!sino pregúntenle porque su...
7	Agua llega hasta edificios públicos en Iquique. Jorge Sor...	EMOL	National media	1	Week 1	Immediate	12	donde son los incendios porfavorr tengo mi dept...
8	A seis aumentan los muertos por terremoto en extremo ...	EMOL	National media	2	Week 1	Immediate	9	necesitoo ayuda!! necesito saber cual eran los no...
9	Intendencias informan las suspensiones de clases por t...	EMOL	National media	2	Week 1	Immediate	3	Esto incluye las universidades? Actividades doce...
10	Sismología: Más que un megasismo, es probable que h...	EMOL	National media	2	Week 1	Immediate	64	Pedimos oraciones por los chilenos. Entonces Pi...
11	Transbank: Tarjetas de crédito y Redcompra operan con...	EMOL	National media	2	Week 1	Immediate	0	
12	Collahuasi espera normalizar sus operaciones en las pr...	EMOL	National media	2	Week 1	Immediate	0	
13	CDEC-SING: Instalaciones de generación y transmisión ...	EMOL	National media	2	Week 1	Immediate	0	
14	Argentina envía energía eléctrica a Chile tras terremoto ...	EMOL	National media	2	Week 1	Immediate	3	gratis? Si, gratis, somos gente, vos y otros de tu ...
15	Ministro de Defensa: Dentro del estado de excepción, el...	EMOL	National media	2	Week 1	Immediate	2	aunque les arda el utero..... sacaro...
16	Gobernantes ofrecen ayuda a Chile tras terremoto que a...	EMOL	National media	2	Week 1	Immediate	15	MUCHA FUERZA PARA NUESTRO PAÍS FORÇ...
17	Minsal: Hospital de Iquique queda con el 30% de su infr...	EMOL	National media	2	Week 1	Immediate	0	
18	DC llama al Gobierno a establecer una nueva institucion...	EMOL	National media	2	Week 1	Immediate	1	Cuantos sismógrafos se compraron en el primer ...
19	Nuevo balance de la Onemi: 8 rutas afectadas y diverso...	EMOL	National media	2	Week 1	Immediate	13	Es una pena que haya pasado este problema. Q...
20	Fiscalía descarta motín en fuga masiva de internas en Iq...	EMOL	National media	2	Week 1	Immediate	1	Muy bien. Creo que se debería premiar a aquella...
21	Amplitud pide urgencia a creación de Agencia Nacional ...	EMOL	National media	2	Week 1	Immediate	4	Que increíble, el oportunismo político de algunos,...

Once the database was built, the SPSS spreadsheet was saved as a .csv file – in this case, a CSV UTF-8 file, so that the encoding could read Spanish characters (for more information about UTF-8 encoding see Chew, Mikami, & Nagano, 2011). The .csv file was content-analyzed using the Structural Topic Model **stm** R package implemented by Roberts, et al. (2014a). The **stm** R package provides different functions to estimate topic models and visualize relationships between topics and variables contained in the database (for an application, see Roberts et al., 2014b). After fitting the model, a matrix of topic proportions was generated also using the **stm** package. The analysis provides an estimate of each document’s association with every topic in a matrix where the rows are documents and the columns are topics, and the cell entries are the proportion of the document that uses a certain topic. Thus, all values in a row add up to 1. For example, if a 3-topic model was estimated, a document may have a distribution of .3, .6, and .1, indicating that 30% of that document is using Topic 1, 60% is using Topic 2, and 10% is using Topic 3. The matrix contains as many cases as documents analyzed—unless the modeling removed documents because of number-of-words thresholds¹³—and as many topics as indicated by the researcher (K). If the data contained 50 cases and none of them was removed, the matrix would contain 50 rows and K number of topics. Topics may be then treated as variables and analyzed in tandem with other variables included in the study.

ANALYSES AND PROCEDURES

Research Question 1 (RQ1) inquires about the dominant themes emphasized in a) news stories, b) government press releases, and c) online news comments

¹³ Word thresholds set the minimum number of documents a word needs to appear in in order to be kept in the dataset. If a document is made up of words that were removed for not meeting the threshold, the document would have no words and would be removed from the dataset as well (Roberts et al., 2014a).

published/posted regarding the 2014 earthquake and tsunami in northern Chile. To answer RQ1a and RQ1b, media and government topics were estimated. The model was fitted using the “Document content” variable in the database to analyze the content of news stories and government press releases together. After conducting several runs on the data, a 20-topic solution was estimated as the best model fit. The **stm** analysis returned a matrix with 879 cases and 20 variables, where the rows were documents (news stories and press releases) and the columns were topics, and the cell entries were the proportion of the document that used a certain topic.

To answer RQ1c, public opinion topics were estimated. The model was fitted using the “Comment content” variable in the database to analyze the content of all comments posted to the 483 stories published by EMOL, *La Tercera*, and *La Nación*. A 10-topic solution was estimated as the best model fit, and a matrix with 483 cases and 10 variables was obtained.

Topics found in RQ1a, 1b and 1c were added to the SPSS spreadsheet. The 20 topics found in the media and government documents did not have missing data as the 879 cases were used to fit the model. The 10 topics found in the comments contained data for the national media documents but not for the local media or government documents as these documents did not have comments posted by news readers. Therefore, documents from local media and government websites did have missing data in the SPSS spreadsheet. Figure 4.3 illustrates rows and columns in the SPSS spreadsheet once topics were added¹⁴. Cases from 1 to 4 had a high proportion of Topic 1 (98% in Case 1, and 97% in Case 3), while Case 5 showed less than 1%. None of the cases in Figure 4.2 used Topic 2, while Topic 3 was prominent in Case 15 (81%). Case 8 is a good example of

¹⁴ Figure 4.3 is a screenshot of the original SPSS spreadsheet used in this study. Therefore, the content of documents is written in Spanish.

mixed-membership modeling – 32% of the document was associated to Topic 1, 15% to Topic 3, and 41% to Topic 4. The remaining 12% was distributed among other topics in the model.

The 19 cases illustrated in Figure 4.3 correspond to stories published by EMOL in the aftermath of the earthquake. Stories published by other outlets in later dates may show different topic proportions. This dissertation aimed to observe such differences exploring topics based on the variables contained in the database such as source and type of coverage.

Figure 4.3. Screenshot of the database created for this study (part 2).

ID_number	Document_content	Outlet	Coverage	Topic1	Topic2	Topic3	Topic4	Topic5	Topic6	Topic7	Topic8	Topic9
1	Alarma en Perú por terremoto en Chile: Armada de ese ...	EMOL	Immediate	.981	.000	.004	.002	.001	.000	.001	.001	.002
2	Terremoto en el norte de Chile también fue percibido en ...	EMOL	Immediate	.492	.000	.004	.009	.067	.002	.003	.001	.007
3	Ecuador decretó alerta roja de tsunami por terremoto en...	EMOL	Immediate	.970	.000	.004	.002	.001	.000	.001	.001	.003
4	Preocupación se extendió en toda la costa del Pacífico ...	EMOL	Immediate	.797	.000	.004	.004	.003	.000	.002	.000	.003
5	Fiscalía de Iquique confirma que no hubo saqueos ni det...	EMOL	Immediate	.005	.000	.003	.980	.001	.000	.000	.000	.005
6	Papa Francisco expresa honda pena por víctimas del ter...	EMOL	Immediate	.796	.000	.010	.003	.004	.005	.112	.040	.006
7	Agua llega hasta edificios públicos en Iquique. Jorge Sor...	EMOL	Immediate	.047	.000	.003	.008	.013	.034	.003	.002	.362
8	A seis aumentan los muertos por terremoto en extremo ...	EMOL	Immediate	.317	.000	.154	.405	.003	.002	.001	.000	.011
9	Intendencias informan las suspensiones de clases por t...	EMOL	Immediate	.165	.000	.054	.001	.000	.000	.000	.000	.006
10	Sismología: Más que un megasismo, es probable que h...	EMOL	Immediate	.007	.000	.000	.001	.001	.000	.001	.000	.000
11	Transbank: Tarjetas de crédito y Redcompra operan con...	EMOL	Immediate	.004	.000	.001	.003	.001	.001	.000	.000	.976
12	Collahuasi espera normalizar sus operaciones en las pr...	EMOL	Immediate	.203	.000	.009	.020	.001	.001	.001	.000	.331
13	CDEC-SING: Instalaciones de generación y transmisión ...	EMOL	Immediate	.002	.000	.001	.003	.000	.001	.000	.000	.984
14	Argentina envía energía eléctrica a Chile tras terremoto ...	EMOL	Immediate	.783	.000	.032	.002	.002	.002	.004	.105	.004
15	Ministro de Defensa: Dentro del estado de excepción, el...	EMOL	Immediate	.010	.000	.806	.169	.000	.001	.000	.000	.004
16	Gobernantes ofrecen ayuda a Chile tras terremoto que a...	EMOL	Immediate	.816	.000	.014	.003	.004	.003	.078	.056	.003
17	Minsal: Hospital de Iquique queda con el 30% de su infr...	EMOL	Immediate	.011	.000	.001	.002	.003	.002	.000	.000	.270
18	DC llama al Gobierno a establecer una nueva institucion...	EMOL	Immediate	.039	.000	.181	.009	.003	.001	.070	.002	.007
19	Nuevo balance de la Onemi: 8 rutas afectadas y diverso...	EMOL	Immediate	.007	.000	.002	.096	.001	.001	.000	.000	.882

Hypotheses 1 and 2 (H1 and H2) make predictions about the lifespan of the disaster coverage depending on dates and sources. H1 posits most of the stories covering the 2014 earthquake and tsunami in northern Chile were published in the days immediately after the disaster. H2 suggests the local newspaper *El Longino* covered the disaster for a longer period of time as compared to national outlets EMOL, *La Tercera* and *La Nación*. To test H1, a one-sample Chi-Square test was conducted to determine if the proportion of cases that significantly skewed toward the immediate aftermath of the disaster was larger than the proportion expected if the null hypothesis were true (Williams, 2007). The variable “Week” was used to compare the proportion of stories in each week. To test H2, a Chi-Square test was performed using the variables “Week” and “Outlet” for a cross tabulation to compare the distribution of news stories in each week by the four news outlets observed in this study.

Hypotheses 3 and 4 (H3 and H4) make predictions about the topics emphasized by the government as well as the newspapers when covering the 2014 earthquake and tsunami in northern Chile. H3 predicts differences between the local newspaper *El Longino* and national outlets EMOL, *La Tercera*, and *La Nación*, while H4 predicts differences between topics emphasized by the media (both local and national) and topics emphasized by the government. To test both H3 and H4, a one-way analysis of variance (ANOVA) was performed to identify statistically significant differences in the topic means depending on the outlet/source. The variables “Outlet” and “Source” were used to conduct the ANOVA test with each topic.

Research question 2 (RQ2) explores the lifespan of each topic coverage. To answer RQ2, an independent-samples t-test was conducted to compare the means of each topic depending on the type of coverage (immediate/subsequent). The variable

“Coverage” was used to conduct the independent-samples t-test with each topic. This analysis allowed to identify which topics were covered for a longer time period.

Hypothesis 5 (H5) and Research question 3 (RQ3) examine the role played by the 2010 earthquake and tsunami in southern Chile (known as 27/F) in the coverage of the 2014 disaster. H5 suggests the more adversarial the outlet was to President Bachelet’s government, the more the outlet’s coverage used the 27/F disaster as a benchmark to explain the 2014 earthquake and tsunami in northern Chile. RQ3, on the other hand, asks whether the government addressed the 2010 disaster to give context to their performance in 2014. To test H5 and answer R3, a two-step approach was used. First, topics identified in RQ1 were inspected to determine if any of the topics described or mentioned the 27/F disaster in 2010. Second, the 27/F-related topics were compared by outlet/source to determine whether the media and the government used the 27/F significantly different when explaining the 2010 earthquake and tsunami in northern Chile. A one-way analysis of variance was performed to establish this comparison using the “Outlet” variable.

Hypotheses 6, 7 and 8 (H6, H7 and H8) address public opinion topics. H6 poses topics emphasized by the media were positively correlated with topics discussed by the public opinion, suggesting the online conversation about the 2014 earthquake and tsunami in northern Chile echoed the media discourse. H7 introduces a competing hypothesis, suggesting a) the public discussed issues other than those covered by the media, and b) issues introduced by the public went beyond the realm of the 2014 earthquake and tsunami. In other words, the public introduced different elements in the online conversation about the 2014 disaster, and some of these elements were not necessarily related to the actual disaster. To test H6, H7a and H7b, topics found in RQ1a and 1b were correlated with public opinion topics found in RQ1c. As described above, topics found with structural topic models (**stm**) were introduced in the database as

variables, where the unit of analysis was the document (news stories and press releases). Correlations between topics included the 483 cases that had comments posted to stories, as cases with no comments (such as *El Longino* stories and government press releases) did not have data to model public opinion topics. Zero-order Pearson's correlations were conducted to calculate correlations among topics.

Hypothesis 8 (H8) suggests the more adversarial the outlet was to President Bachelet's government, the more its news readers used the 27/F disaster as a benchmark to comment on the 2014 earthquake and tsunami in northern Chile. To test H8, topics identified in RQ1c were inspected to determine if any of the topics described or mentioned the 27/F disaster in 2010, and whether those topics varied depending on the outlet.

Finally, Research question 4 (RQ4) asks how a) the media, b) the government, and c) public opinion framed the 2014 disaster. To answer RQ4a, 4b and 4c, topics found in RQ1 were examined under Entman's (1993) definition of frames and framing functions. As explained in Chapter 3, frames perform four functions: they define problems, identify causes, offer moral judgments, and suggest solutions. Thus, media, government, and public opinion topics were examined to determine which of the four framing functions were used by Chilean media, government, and public opinion to frame the disaster. Framing devices such as key words, subtle phrases, and latent themes contained in each topic's most prominent documents were considered to identify functions used by each of the framing actors (media, government, and public). Table 4.4 summarizes the methods, analyses and datasets used in this study.

Table 4.4. Summary of the methods, analyses, and datasets used in this study.

Hypotheses and research questions	Data sets		
	<i>Media</i> (<i>News stories</i>)	<i>Government</i> (<i>Press releases</i>)	<i>Public opinion</i> (<i>News comments</i>)
RQ1: What were the dominant themes in a) the news stories, b) government press releases, and 3) online news comments about the 2014 earthquake and tsunami in northern Chile?	<ul style="list-style-type: none"> • Topic modeling 	<ul style="list-style-type: none"> • Topic modeling 	<ul style="list-style-type: none"> • Topic modeling
H1: Most of the stories covering the 2014 earthquake and tsunami in northern Chile were published in the days immediately after the disaster.	<ul style="list-style-type: none"> • One-sample Chi-Square • Interviews with journalists 	<ul style="list-style-type: none"> • One-sample Chi-Square • Interviews with journalists 	
H2: The local newspaper <i>El Longino</i> covered the 2014 earthquake and tsunami in northern Chile for a longer period of time compared to national newspapers EMOL, <i>La Tercera</i> , and <i>La Nación</i> .	<ul style="list-style-type: none"> • Chi-Square 		
H3: a) When covering the 2014 earthquake and tsunami in northern Chile, topics emphasized by national newspapers EMOL, <i>La Tercera</i> , and <i>La Nación</i> were significantly more negative than those emphasized by local newspaper <i>El Longino</i> , while b) topics emphasized by <i>El Longino</i> were more focused on people's needs.	<ul style="list-style-type: none"> • Topic modeling • One-way ANOVA • Interviews with journalists 		
H4: The topics covered by the newspapers <i>El Longino</i> , EMOL, <i>La Tercera</i> , and <i>La Nación</i> were significantly different from the topics emphasized in the government press releases regarding the 2014 earthquake and tsunami in northern Chile.	<ul style="list-style-type: none"> • Topic modeling • One-way ANOVA • Interviews with journalists 	<ul style="list-style-type: none"> • Topic modeling • One-way ANOVA • Interviews with journalists 	
RQ2: What topics were covered for a longer period of time?	<ul style="list-style-type: none"> • Topic modeling • Independent-samples t-test • Interviews with journalists 	<ul style="list-style-type: none"> • Topic modeling • Independent-samples t-test • Interviews with journalists 	

Table 4.4. (Continued).

Hypotheses and research questions	Data sets		
	<i>Media</i> (<i>News stories</i>)	<i>Government</i> (<i>Press releases</i>)	<i>Public opinion</i> (<i>News comments</i>)
H5: The more adversarial the outlet is to President Bachelet's government, the more the outlet's coverage will use the 27/F disaster as a benchmark to explain the 2014 earthquake and tsunami in northern Chile.	<ul style="list-style-type: none"> • Topic modeling • One-way ANOVA • Interviews with journalists 		
RQ3: Did the government mention the 2010 earthquake in southern Chile when explaining the actions taken during the 2014 earthquake and tsunami in northern Chile?		<ul style="list-style-type: none"> • Topic modeling • One-way ANOVA 	
H6: Topics emphasized by the media when covering the 2014 disaster were positively correlated with topics discussed via public opinion.	<ul style="list-style-type: none"> • Topic modeling • Zero-order Pearson's correlation 		<ul style="list-style-type: none"> • Topic modeling • Zero-order Pearson's correlation
H7a: Topics discussed in the online conversation differed from the topics emphasized by the media.	<ul style="list-style-type: none"> • Topic modeling • Zero-order Pearson's correlation 		<ul style="list-style-type: none"> • Topic modeling • Zero-order Pearson's correlation • Qualitative textual analysis
H7b: Topics discussed in the online conversation went beyond the realm of the 2014 earthquake and tsunami.			<ul style="list-style-type: none"> • Topic modeling • Interviews with journalists • Qualitative textual analysis
H8: The more adversarial the outlet is to President Bachelet's government, the more its news readers will use the 27/F disaster as a benchmark to comment on the 2014 earthquake and tsunami in northern Chile.			<ul style="list-style-type: none"> • Topic modeling • Qualitative textual analysis
RQ4: How did a) the media, b) the government, and c) the public frame the 2014 disaster?	<ul style="list-style-type: none"> • Topic modeling • Interviews with journalists 	<ul style="list-style-type: none"> • Topic modeling • Interviews with journalists 	<ul style="list-style-type: none"> • Topic modeling • Interviews with journalists • Qualitative textual analysis

The statistical analyses conducted to test hypotheses about public opinion topics mirrored the steps followed to test hypotheses about media and government topics. However, a pilot study conducted with a subset of the comments revealed topic modeling might not be able to capture all the nuances in the news readers' discussions, mostly because comments do not necessarily follow formal language rules (such as grammar and syntax), and words may be spelled in different ways causing topic modeling to treat them as different words (Saldaña, 2014). If users engage in conversations by replying to other users' posts, the modeling process is not able to pick up these interactions either. Thus, qualitative textual analysis was used to achieve a better representation of the public discussion of the earthquake-related news. The section below describes the qualitative textual analysis used in this dissertation.

QUALITATIVE TEXTUAL ANALYSIS

While content analysis is a research technique “for the objective, systematic, and quantitative description of the manifest content of communication” (Berelson, 1952; p. 18), qualitative textual analysis goes beyond the manifest content of media to observe latent meaning, implicit patterns, assumptions, and omissions contained in a text (Fürsich, 2009). Using this type of analysis requires researchers to immerse themselves in the content under study—“the long preliminary soak,” in Hall’s terms (1975; p. 15)—to achieve a certain intimacy and familiarity with the texts. The immersion in the materials is a *sine qua non* for a researcher to recognize recurring patterns of discourse (Pauly, 1991).

As explained above, this dissertation utilizes topic modeling to identify how the government, the media, and the public opinion framed the 2014 earthquake and tsunami in northern Chile. Yet, cultural assumptions and ideological meanings may not be

manifest in the content alone (Fürsich, 2009). That is why this dissertation adds qualitative textual analysis to the methodological repertoire of techniques utilized to identify and describe framing functions embedded in the content.

To conduct qualitative textual analysis with the entire corpus of news comments analyzed in this study, comments were printed to work with hard copies of the content. I immersed myself in the material and read the comments several times to become familiar with the online conversation about the 2014 disaster. Based on grounded theory and the constant comparative method, the analysis followed an iterative process where comments were examined in several coding cycles to identify patterns and provide meaningful responses to the questions asked in this study (Glaser & Strauss, 1967; Tracy, 2013).

Grounded theory provides a systematic and rigorous framework to address data analysis from an inductive perspective (Glaser & Strauss, 1967). Yet, the qualitative analysis conducted in this dissertation is best described not as grounded, but as iterative: “Rather than grounding the meaning solely in the emergent data, an iterative approach also encourages reflection upon the active interest, current literature, granted priorities, and various theories the researcher brings to the data” (Tracy, 2013; p. 194). Following this iterative approach, a primary-cycle coding ensued with myself reading and re-reading the entire corpus of news comments, paying special attention to readers’ interactions keeping in mind findings obtained via STM. Through this primary-cycle coding process, news comments were assigned to preliminary categories, and each new comment was compared to the previous one to assess categorical fit. Color coding and margin notes were used to assign codes, labels and categories to each comment. During the secondary-cycle coding, I refined categories found in the previous cycle organizing them into meaningful patterns and interpretations. A third cycle of analysis was deemed necessary to identify categories for specific research questions and hypotheses tested in this study.

SEMI-STRUCTURED INTERVIEWS

To achieve holistic understanding regarding media coverage of the 2014 disaster, this study conducted semi-structured interviews with Chilean journalists who covered the earthquake during April 2014.

Interviews are an “inter-change of views between two persons conversing about a theme of mutual interest” (Kvale & Brinkmann, 2009; p. 2). When applied to qualitative research, interviews are a useful technique to understand how individuals make sense of their own experience, providing a chance to elucidate phenomena that may otherwise be unseen (Tracy, 2013). For the purpose of this dissertation, interviews were conducted to contextualize findings from STM and clarify relationships identified in the statistical analyses. This study does not aim to find patterns emerging from journalists’ responses, but to use their perspective to ensure accuracy and validity (Tracy, 2013) when explaining this dissertation’s findings.

Interviews are commonly classified according to their level of flexibility and depth. Structured interviews use a list of questions asked of all participants in the same order using the same wording (Tracy, 2013). In contrast, unstructured interviews do not use a rigid battery of questions but an interview guide where topics and issues are specified in advance. In this type of interview, the interviewer decides sequencing, pace and wording during the conversation (Patton, 1990). This dissertation conducted semi-structured interviews where the interaction was guided by a set of prepared questions but allowed additional questions for verification, accuracy and clarity (Taylor & Bogdan, 1998; Kvale, 1996.).

Seven journalists were interviewed in April 2017 – two from EMOL, three from *La Tercera*, and two from *La Nación*. Interview subjects constituted a convenience or “purposive” sample of journalists who covered the 2014 earthquake. Purposive samples

are selected to fulfill a certain purpose and are not representative of the entire population (Tracy, 2013). For this dissertation, a convenience sample was justified as the goal was not aimed to generalize findings to the entire population of Chilean journalists nor to explain how journalists make news-content decision on their daily work. The overarching intention was to achieve a better understanding of the media topics found in the analyses, and journalists' answers were used to provide context to the findings described in chapters 5 and 6.

Subjects were selected based on the stories they wrote as well as their willingness to participate¹⁵. Reporters were initially contacted by email to request a Skype call interview. Calls were recorded using MP3 Skype Recorder, a free software for private, non-commercial use. Interviews lasted between 45 to 60 minutes and were conducted in Spanish. Journalists were asked how they went about writing earthquake-related stories, how they selected their sources, and how they determined the main angle of the narrative. They were also asked about their relationship with official sources and online audiences, particularly online news commenters. Journalists were interviewed only once, and all interviews were transcribed verbatim. Appendix A provides the list of interview questions used for this dissertation.

Human subjects and safety

This project received approval from the University of Texas at Austin Institutional Review Board (IRB) before proceeding on to contact any Chilean journalist. Participants were notified of the nature of this study and their opportunity to opt out at any point. Participants were assured all personal information or any information that could reveal their identity would not be mentioned in the final manuscript. This study

¹⁵ No journalists from the local newspaper *El Longino* were willing to participate in the interviews.

involved no vulnerable populations, and the potential risk to the participants was no greater than everyday life. The data is currently stored on a password-protected folder in a password-protected cloud service, and no one besides the author of this dissertation has access to it.

RESULTS

Chapter 5. Government and Media Frames

This chapter focuses on the themes emphasized by the Chilean government and news media when informing the public about the 2014 earthquake and tsunami in northern Chile. Four news outlets were included in the analysis: the national newspapers EMOL, *La Tercera*, and *La Nación*, and the local newspaper *El Longino*, one of the primary sources of information in northern Chile. Government press releases were obtained from the official websites of 14 ministries directly involved with the earthquake's consequences (see full description in Chapter 4, Table 4.2); the National Emergency Office (ONEMI, from the initials in Spanish); *Prensa Presidencia* (Chilean Presidency Press Office), and the local government of the two regions most affected by the earthquake – the Tarapacá Region, and the Arica and Parinacota Region.

In this chapter, I analyze news stories and government press releases using Structural Topic Models (STM) (Roberts et al., 2014a) to identify the most prominent topics contained in the content. Then, I compare the coverage of the topics by each of the newspapers as well as the government to observe any differences in the topics emphasized by each source. Similarly, I compare the lifespan of the coverage in each source to identify which sources covered the disaster for a longer period of time and which topics lasted longer in the media coverage. I examine topics and patterns of coverage lifespan by source to determine how the government and media framed the disaster and its consequences.

Finally, I use semi-structured interviews with journalists working for the national newspapers included in this study to provide context to the findings.

Each of the four newspapers analyzed provides a different perspective of the Chilean news media. EMOL¹⁶ is the online version of *El Mercurio*, considered the most important paper in the country. *El Mercurio* is owned by *El Mercurio S.A.P.*, a news company that owns two national dailies, an evening metropolitan newspaper, and at least 20 regional/local newspapers throughout the country (Mellado, 2012). Historically linked to the Chilean right wing, *El Mercurio* is considered the country's paper of record and is said to set the agenda of other Chilean media (Gronemeyer & Porath, 2017). *La Tercera* is also considered a right-wing outlet and is *El Mercurio's* closest competitor. It belongs to *Copesa S.A.*, a news company that owns two national dailies, two free morning and evening metropolitan editions, a local newspaper in southern Chile, and three weekly magazines (Mazotte, 2014).

La Nación, a newspaper unaffiliated with the *El Mercurio S.A.P./Copesa* duopoly, used to be state-owned and it is currently published online only. In 2013, the newspaper was sold to a private company, *Comunicaciones Lanet S.A.*, which has slowly reduced the staff and the scope of the outlet. According to a reporter from *La Nación*, the paper used to have a staff of 80 journalists before the sale in 2013. By the time of the earthquake in 2014, the staff had reduced to 15 journalists, and nowadays eight journalists are currently working for the paper (personal communication, April 10, 2017). Despite it not being one of the main news outlets in the country, it was included in the analysis to bring a different political perspective as *La Nación* is usually associated as left wing (Sorensen, 2011).

Last but by no means least, *El Longino* is the only local newspaper included in the analysis. Also unaffiliated with the *El Mercurio S.A.P./Copesa* duopoly, it has a regional

¹⁶ EMOL is the acronym for *El Mercurio On Line*.

scope in northern Chile, and it was the main source of information in the areas struck by the earthquake.

CONTEXT

The earthquake and tsunami on April 1, 2014 were not the first natural disasters President Bachelet faced while in government. On February 27, 2010 an 8.8-magnitude massive earthquake struck central and southern regions of Chile and became the sixth largest earthquake ever recorded in history (Khan, 2013). Immediately after, a tsunami devastated Chile's central coast and Juan Fernandez Island, totaling a loss of close to \$30 billion and leaving more than 500 people dead (Mendoza, Poblete, & Castillo, 2010).

The 2010 disaster occurred during the last days of Michelle Bachelet's first presidency. Both she and her team were strongly criticized for their poor handling of the crisis as they failed to set up tsunami warnings on time, they underestimated the danger of the subsequent waves, and they took 36 hours to declare the affected regions under a "state of emergency," which is considered a too-slow first response to the disaster.

Once she left office in March 2010, president-elect Sebastián Piñera dealt with the aftershocks of the earthquake and started a reconstruction plan for the affected areas. Four years later, on March 11, 2014, President Piñera left office and Michelle Bachelet began her second presidency. In less than a month, on April 1, 2014, an 8.2-magnitude earthquake struck off the coast of northern Chile. This time, President Bachelet ordered a military response within five hours after the earthquake, gave a preventive tsunami warning for the entire coast, and evacuated more than 900,000 people in the north (BBC Mundo, 2014, April 2).

According to some news organizations, both President Bachelet and her team "learned the lesson" from the 2010 earthquake and did a better job handling the situation

in 2014 (*La Tercera*, 2014, April 2). News stories and political analyses of the 2014 disaster constantly compared Bachelet's decisions in 2014 with those made back in 2010. Results presented below describe the themes found in the 2014 disaster news coverage and how these themes relate to the 2010 disaster in southern Chile, if at all.

OVERVIEW

Figures 5.1 to 5.4 illustrate the distribution of news stories published by the four newspapers analyzed in this study, from April 1 to April 30, 2014. Figure 5.5 shows the distribution of press releases from the Chilean government in the same time period, and Figure 5.6 compares the distribution of the four newspapers' stories and the government press releases in April 2014. At first glance figures show an extremely skewed distribution, where most of the stories and press releases were published immediately after the earthquake (between April 1 and April 6). The shape of the distributions is very similar among the national newspapers (Figures 5.1 to 5.3), while the local newspaper *El Longino* shows a more consistent distribution of stories over the month (Figure 5.4).

The national newspapers EMOL and *La Tercera* showed a decrease in the coverage of the disaster after April 12 (Figures 5.1 and 5.2), which might be related to another disaster occurring in the central coast of Chile on April 12. A huge fire took place in the city of Valparaíso, located in the central coast of Chile. It lasted three days, and it is considered to be the worst urban fire in Chilean history (Correa et al., 2016). The fire quickly became the center of media attention, setting the earthquake coverage on the back burner.

The national newspaper *La Nación* followed the same trend that EMOL and *La Tercera* did – most of the stories were published immediately after the earthquake (see Figure 5.3). In terms of absolute numbers, however, *La Nación* published nearly half the

number of stories put out by the other two national outlets. One of the reasons explaining this decline in coverage was the lack of special correspondents covering the disaster in the northern coast, as described by a reporter from *La Nación*:

“When the newspaper was sold (2013), we went from being a print daily to being an online news website with fewer staff and fewer resources. We did not have the capacity to send a special correspondent to Iquique¹⁷. So, our coverage was limited to information we received from the government or news agencies. We also listened to radio stations from Iquique, so that we could know about the victims, the human side of the disaster”
(journalist from *La Nación*; personal communication, April 10, 2017; my translation).

The distribution of government press releases showed several peaks and valleys depending on the release date (see Figure 5.5). For instance, the first peak occurred during the days immediately after the disaster when the government released information about the magnitude of the earthquake, the tsunami warning and evacuation, the conditions of highways, water pipelines, power outages, and the number of fatal victims and damaged houses in the region. The second peak occurred April 8 when President Bachelet announced a reconstruction plan allocating 2.4 million dollars to help towns affected by the disaster. The third peak happened April 17 when the government designated three presidential delegates to be in charge of the reconstruction plan in both northern Chile and Valparaíso.

The coverage by the local newspaper *El Longino* showed peaks and valleys similar to those seen with the government press releases (see Figure 5.4). Before April 12 (the day of the fire in Valparaíso), the coverage showed three peaks – April 4, April 8, and April 11. On April 4, President Bachelet and her cabinet had a meeting to discuss

¹⁷ Iquique is the capital city of the Tarapacá Region in northern Chile.

subsequent steps to manage the crisis and further reconstruction in northern Chile. *El Longino* published several stories about this meeting, reporting on angles such as health (a sanitary alert issued by the Ministry of Health), education (classes would restart once school buildings were repaired, according to the Minister of Education), and agriculture (resources would be allocated to help farming). On April 8, *El Longino* covered President Bachelet's reconstruction plan, and on April 11, it covered the government's report regarding all the measures taken over the 10 days following the earthquake. After the fire on April 12, *El Longino's* coverage also declined, but it was much slower than the national outlets' coverage. In this period, the earthquake-related coverage showed two important peaks: on April 18, after the president announced her reconstruction plan in both Valparaíso and northern Chile, and on April 22, when the paper published a piece about seismic literacy – to what extent people were capable to take care of themselves in disaster situations, especially earthquakes and subsequent tsunamis. No special event triggered this peak in the coverage. Yet, the previous peaks were triggered mostly by official announcements coming from the President.

Figure 5.1. Stories published by national newspaper EMOL (N=187).

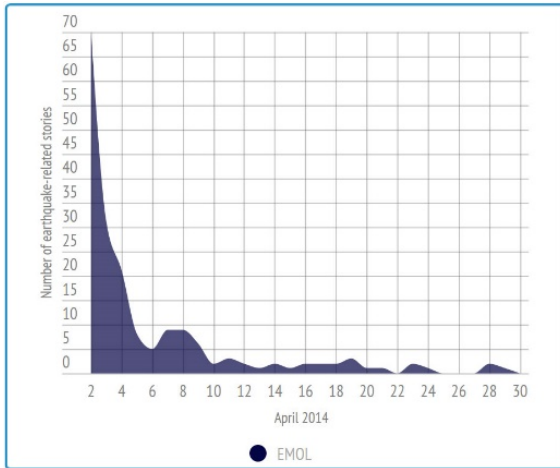


Figure 5.2. Stories published by national newspaper *La Tercera* (N=196).

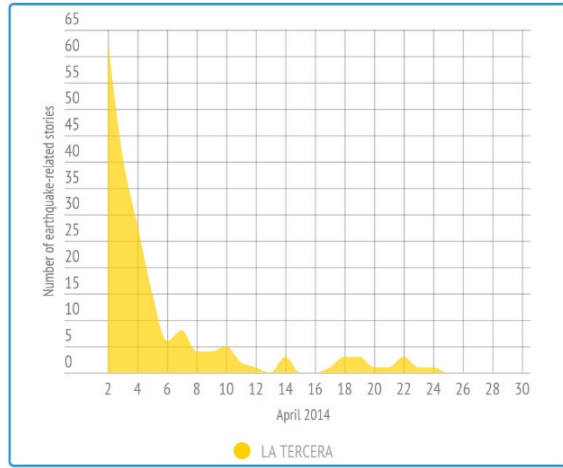


Figure 5.3. Stories published by national newspaper *La Nación* (N=100).

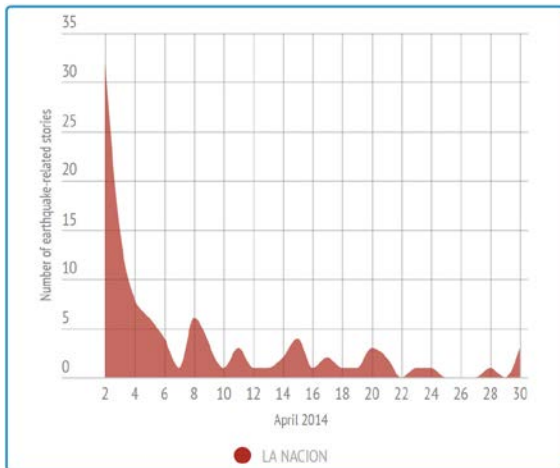


Figure 5.4. Stories published by local newspaper *El Longino* (N=222).

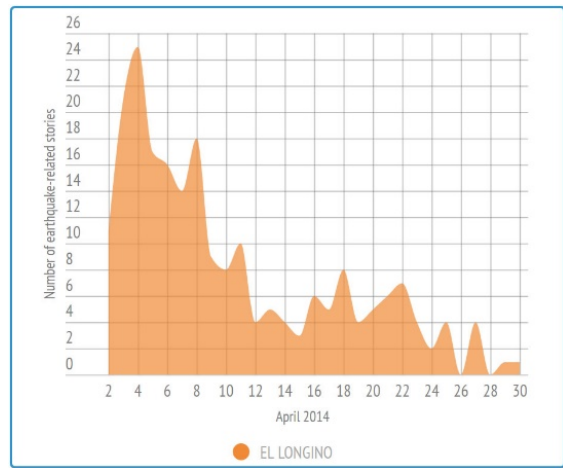


Figure 5.5. Press releases from the Chilean Government

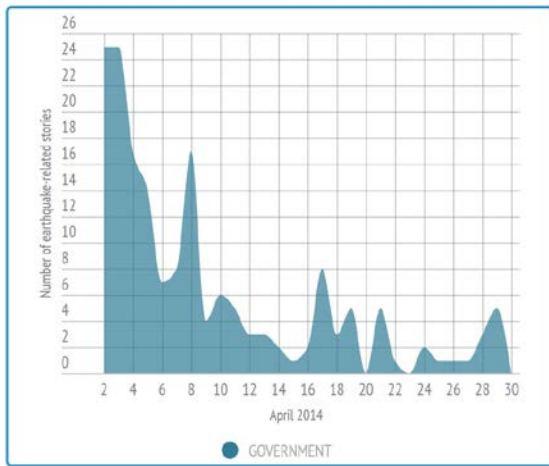
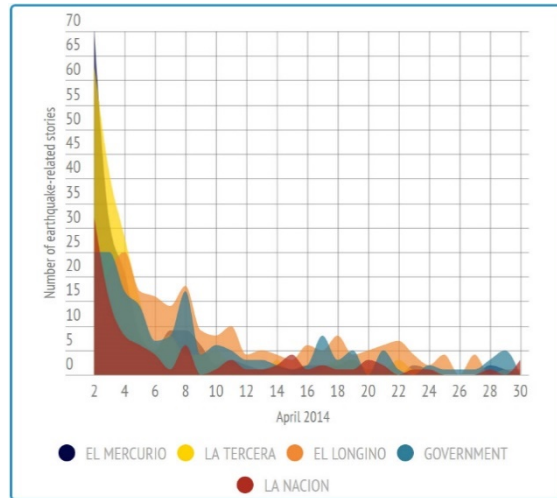


Figure 5.6. Comparison of press releases and news stories (N=879).



DOMINANT THEMES IN THE NEWS COVERAGE AND GOVERNMENT PRESS RELEASES

Research question 1 (RQ1) explores the dominant themes in a) news stories and b) press releases informing about the 2014 earthquake and tsunami in northern Chile. To answer RQ1a and 1b, all news stories and press releases were content analyzed using STM (Roberts et al., 2014a).

As explained in Chapter 4, it is the researcher's task to specify how many topics the model will produce, based on interpretability and analytic utility (Blei & Lafferty, 2009). There is no right answer to this task. The more topics in the solution, the more nuances are picked up by the model, while solutions with fewer topics will tend to overlook the themes discussed. The level of granularity in the analysis will depend on the nature of the documents and the goals of the study (Roberts et al., 2014a). Analyses of documents with a wide variety in their content will require more topics to illustrate meaningful themes in the content. Shahin (2016) estimated a 6-topic model to study the news coverage of the "right to be forgotten" concept. DiMaggio et al. (2013) used a 12-

topic solution to observe the coverage of U.S. government arts funding in five U.S. newspapers. Günther and Domahidi (2017) estimated a 145-topic model to describe the development of research topics in the field of Communication. Thus, the appropriate number of topics largely depends on the corpora and the questions a study aims to answer.

For this study, several models were run with different numbers of topics. To evaluate each model, topics were carefully inspected by looking at the most prominent words and the most prominent documents (news stories/press releases) associated with the topic. A 20-topic solution emerged as the best-fitting model for the corpora, as models with fewer topics left some relevant themes out, while models with more than 20 topics provided repetitive topics, or ones that were not semantically meaningful.

STM incorporates covariates to estimate more accurate models. The inclusion of covariates allows models to borrow strength from documents with similar covariate values when estimating the document-topic proportions (Roberts, et al., 2016). Thus, news stories and press releases were modeled together, incorporating the “Outlet” variable (whether the document was published in EMOL, *La Tercera*, *La Nación*, *El Longino*, or in the official press releases) to estimate topical prevalence (for a detailed explanation of covariate influence, see Roberts et al., 2014a). Figure 5.7 illustrates the 20-topic model starting from the most prominent topic (Authorities) to the least prominent topic (Highways). Topics were labeled based on most prominent words and most prominent documents. Figure 5.8 shows the most important words in each topic based on topic-word proportions, i.e. the probability of observing each word in the vocabulary under a given topic. The model uses two methods to illustrate topic-word proportions: a) high-probability words, which refers to the most probable words under a given topic based on their frequency of co-occurrence within documents, and b)

exclusive words, which are top words for that topic unlikely to appear within top words of other topics (Roberts et al., 2014a). The paragraphs below describe the model's topics and top words in detail.

Figure 5.7. 20-topic model of the 2014 Chile earthquake and tsunami's news coverage and government press releases (N=879).

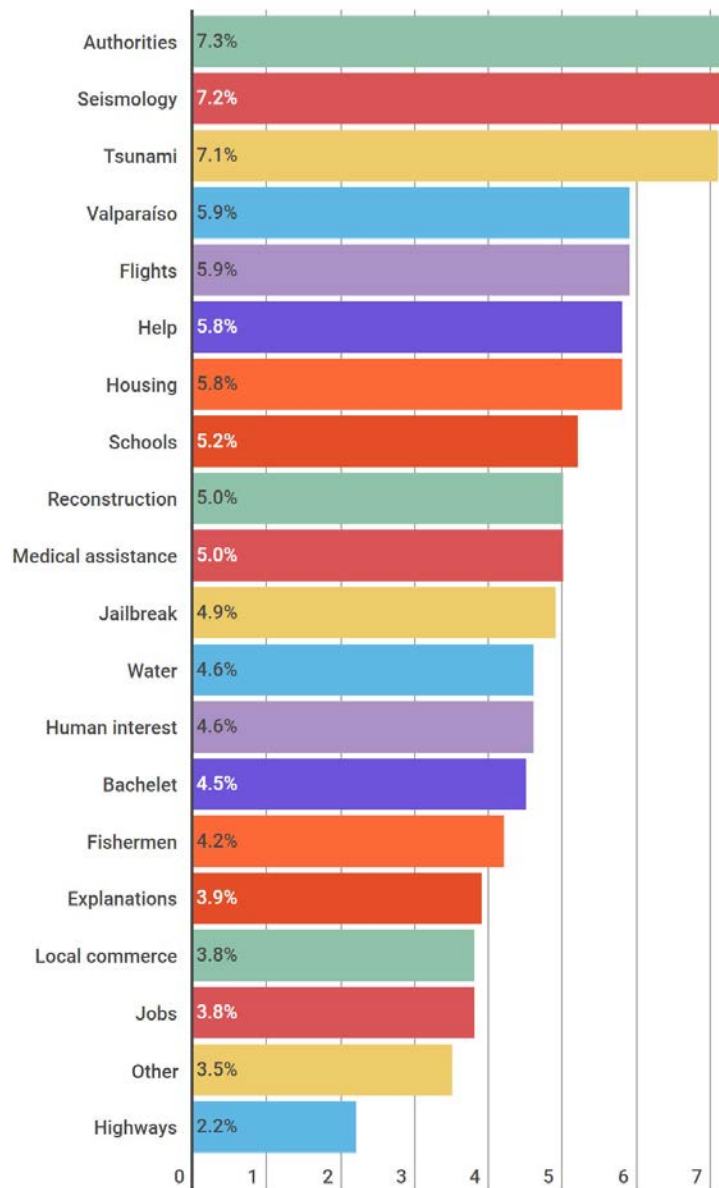
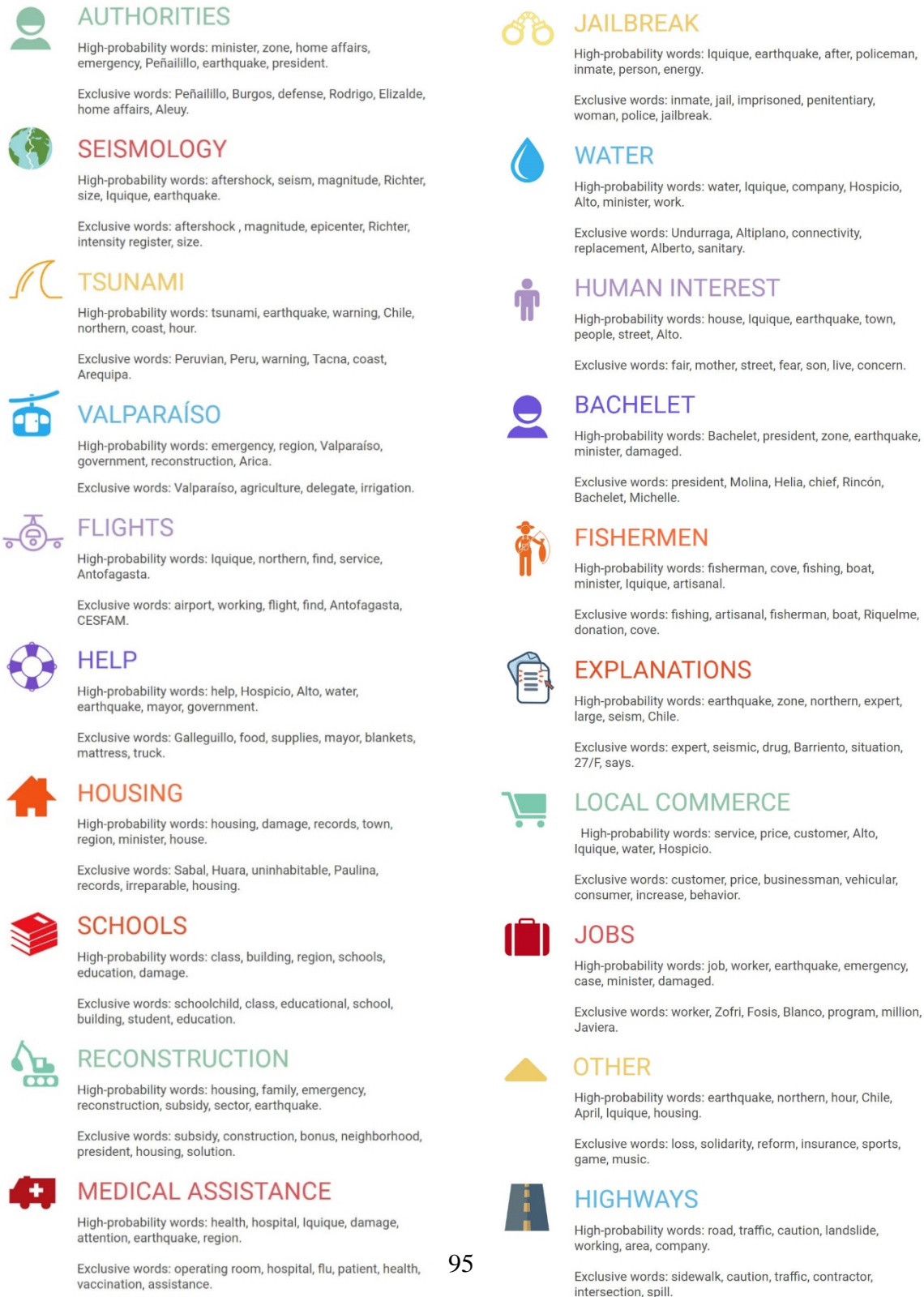


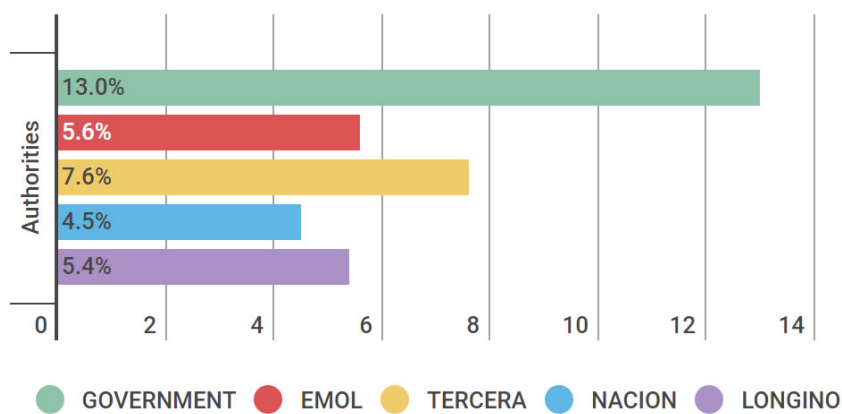
Figure 5.8. High-probability and exclusive words per topic (N=879).



Authorities

According to the proportion in which each topic was utilized in the news stories and press releases, “Authorities” is the most prominent topic in the corpus. As shown in Figure 5.7, 7.3% of the analyzed content used this topic. It includes top words such as “minister” and “president,” and the last names of the authorities directly related to the disaster, such as “Peñailillo” (Minister of Home Affairs and Public Security), “Burgos” (Minister of National Defense) and “Elizalde” (Minister General Secretariat of Government). Documents highly associated with this topic come mainly from the government press releases (see Figure 5.9), and inform about the authorities’ actions to minimize the disaster’s consequences. For example: “President Bachelet declares a state of exception and emergency in the regions of Tarapacá, and Arica and Parinacota” (*Prensa Presidencia*, 2014, April 2; my translation), and “Minister Elizalde informed that the Ministers of Home Affairs and Public Security, and Defense will fly to northern Chile” (*El Longino*, 2014, April 4; my translation). National newspaper *La Tercera* paid more attention to this topic than the other three news outlets.

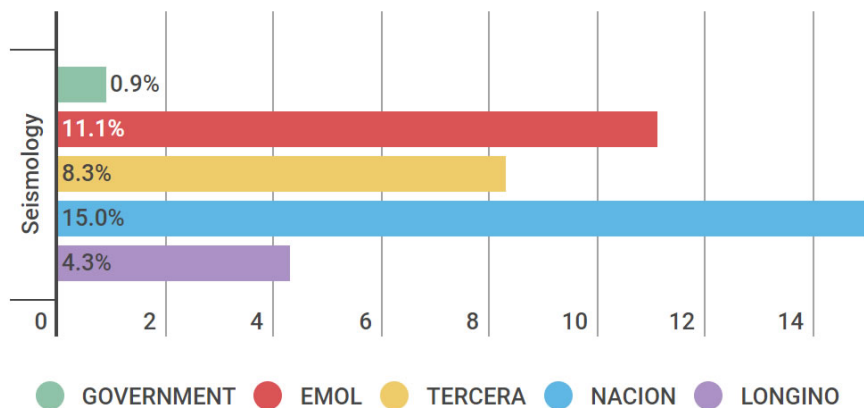
Figure 5.9. Proportion of the corpus using the “Authorities” topic by source.



Seismology

This is the second most relevant topic at 7.2% and it informs about the earthquake and subsequent aftershocks in the aftermath of the earthquake. Top words in this topic include terms such as “aftershock,” “seism,” “magnitude,” “epicenter,” and “Richter.” Documents highly associated with this topic come mainly from the news stories, especially from the national newspapers *La Nación* and EMOL (see Figure 5.10). For instance: “Strong 6.2-magnitude aftershock hit the northern coast this morning. It’s the strongest aftershock registered in the region in the last four days” (EMOL, 2014, April 7; my translation). It is worth noting that this topic is almost ignored by the government, as less than 1% of the press releases described the characteristics of the quake and subsequent aftershocks.

Figure 5.10. Proportion of the corpus using the “Seismology” topic by source.

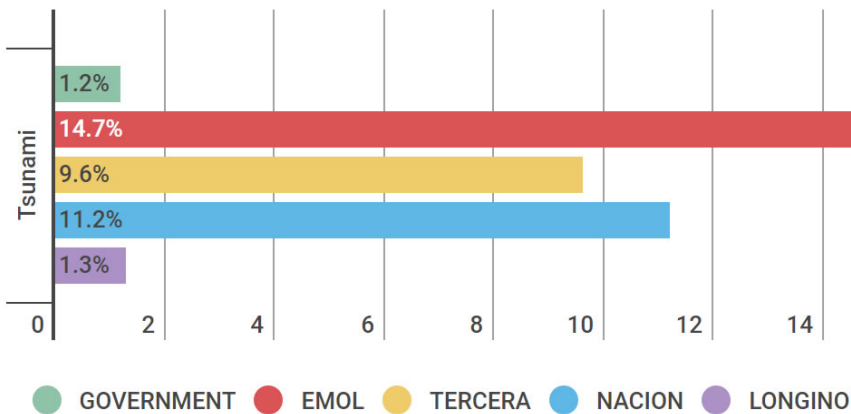


Tsunami

This topic includes terms like “tsunami,” “warning,” “coast,” and “Peru.” It refers to the tsunami warning on the northern coast, which included some places in Peru that could have also been affected by the tsunami. This is the third most relevant topic in the

corpus (7.1%), and the first most relevant topic in the stories published by the national newspapers EMOL (14.7%; see Figure 5.11) and *La Tercera* (9.6%). This suggests that both EMOL and *La Tercera* gave significantly more coverage to this topic than to other earthquake-related topics. Example: “Alarm in Peru after earthquake in Chile: Peruvian Navy evacuates the coast” (EMOL, 2014, April 1; my translation). Despite being highly prominent in the national newspapers, this topic was not emphasized in the stories by *El Longino* nor in the government press releases.

Figure 5.11. Proportion of the corpus using the “Tsunami” topic by source.

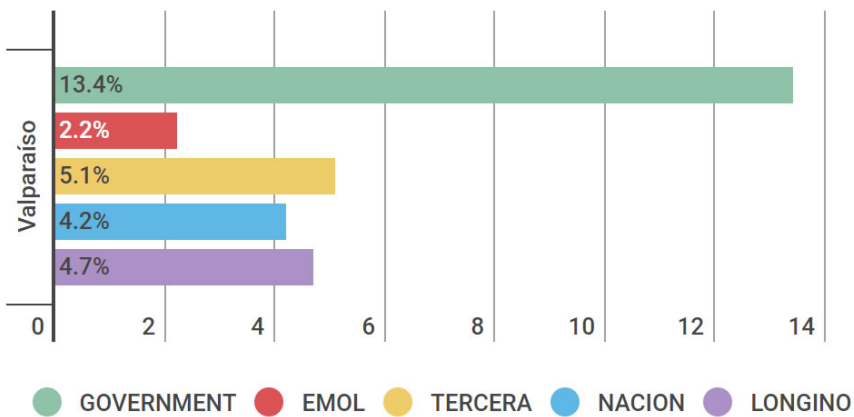


Valparaíso

Valparaíso is the third largest metropolitan area in the country after Santiago (the capital city) and Concepción (in southern Chile). Located in the central coast, Valparaíso is one of the South Pacific's most important seaports, and it is the headquarters for the Chilean National Congress. On April 12, 2014, a massive fire started in the hills of the city. It lasted three days and left 15 people dead, 500 injured, and 12,500 evacuees (Correa et al., 2016). After the fire, victims of the earthquake and tsunami complained that the government's attention shifted to Valparaíso and no longer cared about the people in northern Chile. On April 15, President Bachelet designated three presidential

delegates to work on the reconstruction of both Valparaíso and the northern coast. That is why many of the press releases that discussed the reconstruction process in Iquique also mentioned Valparaíso. Consequently, documents highly associated with this topic come mostly from government press releases (see Figure 5.12), and include terms such as “government,” “reconstruction,” “region,” and “delegate.” Example: “Government appointed presidential delegates for reconstruction in northern Chile and Valparaíso” (Ministry of Home Affairs and Public Security, 2014, April 17; my translation). This is the fourth most relevant topic in the corpus at 5.9%. Yet, the newspapers (especially EMOL) did not pay the same attention as the government did to this topic.

Figure 5.12. Proportion of the corpus using the “Valparaíso” topic by source.

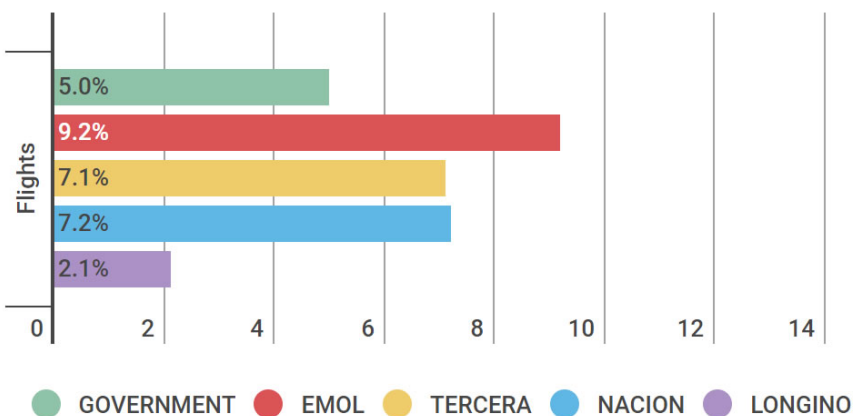


Flights

Also at 5.9%, this topic refers to stories reporting on canceled flights and closed airports in the days following the earthquake. Words such as “airport,” “flights,” “service,” and “working” illustrate this topic, and come mostly from stories published by

EMOL (see Figure 5.13). Examples of this topic include stories such as: “LAN¹⁸ informs it will gradually resume operations after earthquake in the north” (EMOL, 2014, April 2; my translation); “Twenty-three canceled flights affect 4.500 passengers after earthquake in northern coast” (*La Nación*, 2014, April 2; my translation). The local newspaper *El Longino* did not emphasize this topic as much as the national outlets, most likely because air travelers usually come from Santiago to the north to conduct mining-related business. Iquique, Antofagasta and Copiapó are cities where the mining industry has experienced explosive development in the last several decades, increasing the air traffic from Santiago to northern regions (Bertaggia, 2013). Then, information about canceled flights was likely more important for workers and businessmen in Santiago than earthquake victims in Iquique, explaining why the national outlets gave more coverage to this topic than the local newspaper.

Figure 5.13. Proportion of the corpus using the “Flights” topic by source.

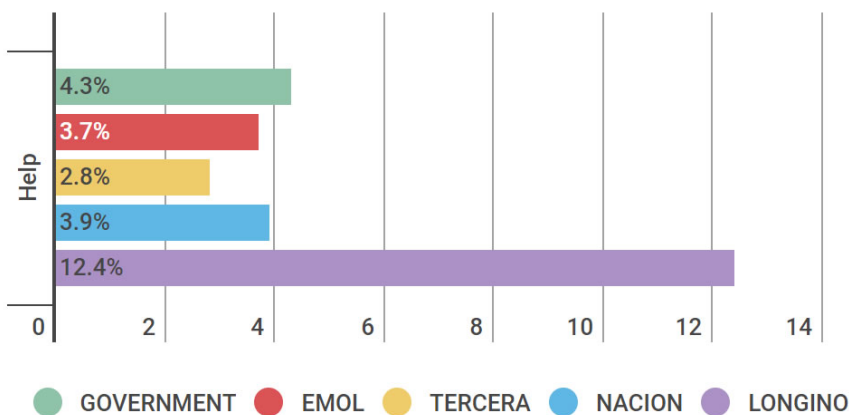


¹⁸ LAN is the most important airline in Chile.

Help

This topic includes terms like “water,” “mayor,” “supplies,” “blankets,” and “mattress.” Stories highly associated with this topic come from the local newspaper *El Longino* (see Figure 5.14) and report on the help that victims received from the regional government and the city hall: “Iquique government distributes water and food” (*El Longino*, 2014, April 6; my translation); “Alto Hospicio¹⁹ receives more than \$50 million²⁰ in help from Las Condes²¹ City Hall” (*El Longino*, 2014, April 10; my translation). This is the sixth most relevant topic in the corpus at 5.8%.

Figure 5.14. Proportion of the corpus using the “Help” topic by source.



Housing

Also at 5.8%, this topic comes mostly from government press releases and the local newspaper *El Longino* (see Figure 5.15) informing about damaged houses after the earthquake: “Government announces subsidies for families with uninhabitable houses in the north after the earthquake” (*El Longino*, 2014, April 13; my translation); “Minister

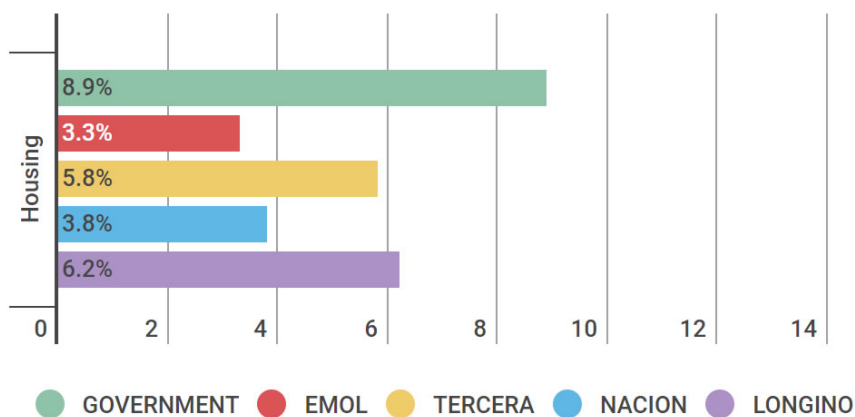
¹⁹ Alto Hospicio is a town located next to Iquique.

²⁰ \$50 million Chilean pesos is the equivalent to \$75,000 U.S. dollars.

²¹ Las Condes is a municipality in Santiago, home of many upper-mid- to high-income families in Chile.

Saball says 2,635 houses are uninhabitable after earthquake in northern Chile” (*La Nación*, 2014, April 12; my translation). Top words in this topic include terms like “housing,” “damage,” “irreparable,” and the first and last name of the Minister of Housing and Urban Planning, “Paulina” and “Saball,” respectively.

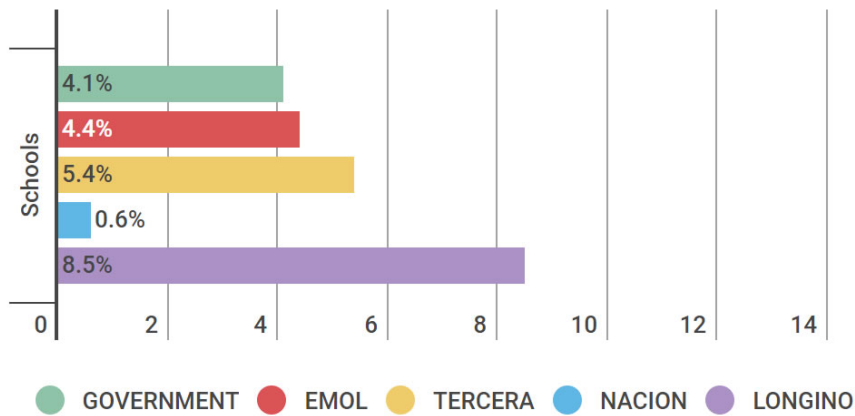
Figure 5.15. Proportion of the corpus using the “Housing” topic by source.



Schools

This topic is the eighth most relevant topic in the corpus at 5.2%. It includes words such as “class,” “building,” “schoolchild,” “student,” and “education.” Most of the stories related to this topic come from the local newspaper *El Longino* (see Figure 5.16) and describe the situation in the schools in northern Chile after the earthquake: “Classes in Tarapacá have been canceled until Monday April 14” (*El Longino*, 2014, April 8; my translation); “Three-thousand students might be relocated to other schools after earthquake in the north” (EMOL, 2014, April 7; my translation). *La Nación* reported minimally on this topic, most probably because they did not send a special correspondent to the north (according to a journalist from *La Nación*; personal communication, April 10, 2017).

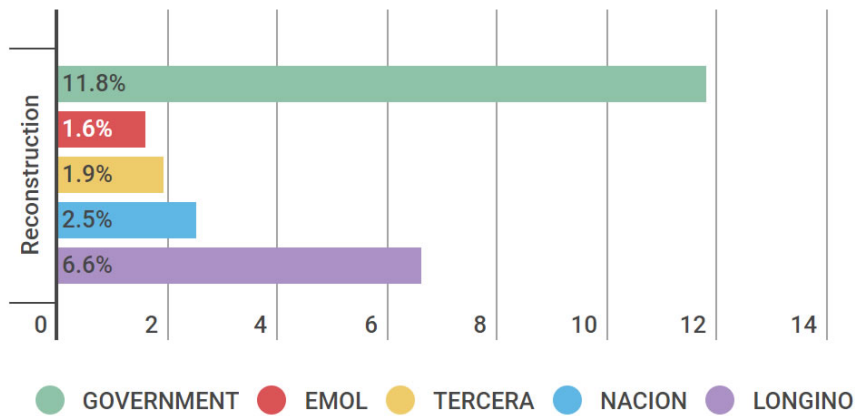
Figure 5.16. Proportion of the corpus using the “Schools” topic by source.



Reconstruction

Terms such as “housing,” “emergency,” “reconstruction,” “subsidy,” “president,” and “solution” are the top words in this topic, which accounts for 5% of the analyzed corpus. Reconstruction is the ninth most relevant topic in the corpus and it refers to the reconstruction plan announced by the President and the Ministry of Housing and Urban Planning. That is why most of the documents associated with this topic come from the government press releases (see Figure 5.17). For instance: “Minister Saball announces reconstruction plan for Arica and Parinacota” (Ministry of Housing and Urban Planning, 2014, April 29; my translation); “Government explains reconstruction of houses for Arica and Parinacota after earthquake” (EMOL, 2014, April 29; my translation).

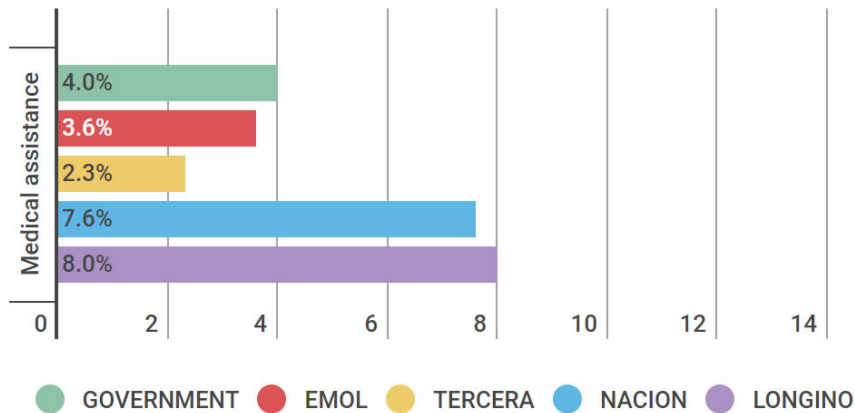
Figure 5.17. Proportion of the corpus using the “Reconstruction” topic by source.



Medical assistance

At 5%, this is the 10th most relevant topic in the corpus. It includes words such as “health,” “hospital,” “operating room,” “flu,” and “patient.” Most of the stories related to this topic come from the local newspaper *El Longino* (see Figure 5.18) and describe the medical situation in the region. Local hospitals were damaged, and the Chilean Army installed a modular hospital in Iquique to take care of the patients. Also, the Minister of Health started a vaccination campaign in the area to prevent the flu, as many people were camping in their backyards or even in the streets, scared of the aftershocks and potential tsunami alerts. Stories illustrating this topic are: “Army modular hospital opened its doors in Iquique” (*El Longino*, 2014, April 20; my translation); “Flu vaccination will also cover Tarapacá region” (*El Longino*, 2014, April 11; my translation).

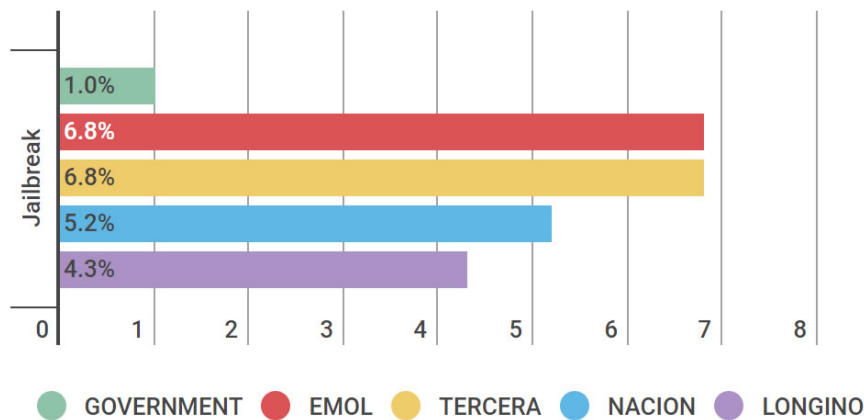
Figure 5.18. Proportion of the corpus using the “Medical Assistance” topic by source.



Jailbreak

At 4.9%, this is the 11th most prominent topic in the model and includes words such as “policeman,” “inmate,” “jail,” “woman,” and “imprisoned.” It describes the escape of more than 300 inmates from a women’s prison in the city of Iquique, after a wall collapsed when the earthquake struck. Stories associated to this topic come mostly from the national newspapers EMOL and *La Tercera* (see Figure 5.19), as the government press releases barely informed about this issue (1%). Examples: “Minister of Justice speaks about the jailbreak in Iquique: the intention was to avoid the death of many people” (*La Tercera*, 2014, April 2; my translation); “128 of the 322 inmates who escaped from prison in Iquique were captured” (*La Tercera*, 2014, April 2; my translation).

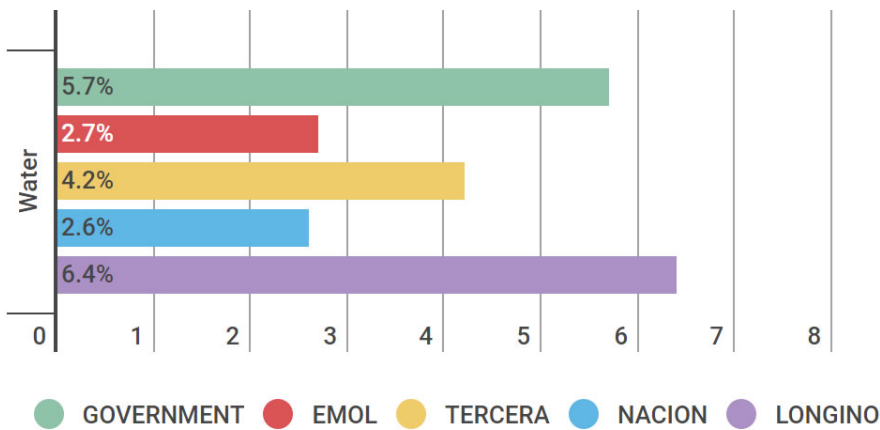
Figure 5.19. Proportion of the corpus using the “Jailbreak” topic by source.



Water

At 4.6% and ranked 12th in the list, this topic describes the lack of water in the region after the earthquake, and the slow normalization of the service during the following days. The government issued an investigation against the company in charge of the service to determine the reasons of the delay. The story was reported mostly by *El Longino* and government press releases (see Figure 5.20), and it included terms like “water,” “company,” “minister,” “replacement,” and “sanitary.” For example: “Ministry of Public Works begins investigation of company for delays in restoring water service in regions affected by the earthquake” (*El Longino*, 2014, April 7; my translation).

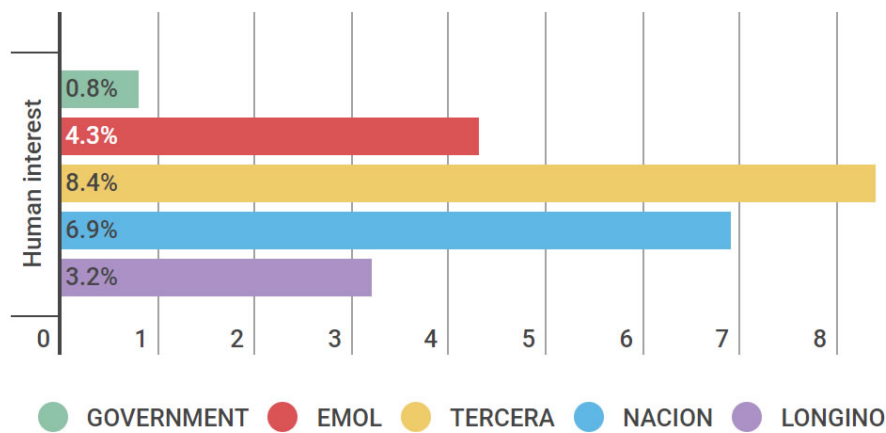
Figure 5.20. Proportion of the corpus using the “Water” topic by source.



Human interest

Despite what previous studies have found regarding disaster news coverage (Houston et al., 2012; Wenger, et al., 1980; Yang, 2012), human interest was not part of the top-10 topics from the earthquake-related news coverage and government press releases. At 4.6%, this is the 13th most important topic in the corpus. Stories highly associated with human interest come from the national newspaper *La Tercera* (see Figure 5.21), and focus on people’s experiences and feelings during and after the earthquake. For instance: “Patricio Palma (60) describes the anxious search for his three-year old daughter after she evacuated the coast with the nanny” (*La Tercera*, 2014, April 3; my translation); “Woman died protecting her three-year old niece from a collapsing wall” (*La Tercera*, 2014, April 3; my translation). The government press releases reported on this topic minimally, and the local newspaper *El Longino* paid less attention to it as compared to the national outlets. Top words in this topic include terms like “people,” “street,” “fear,” “son,” and “concern.”

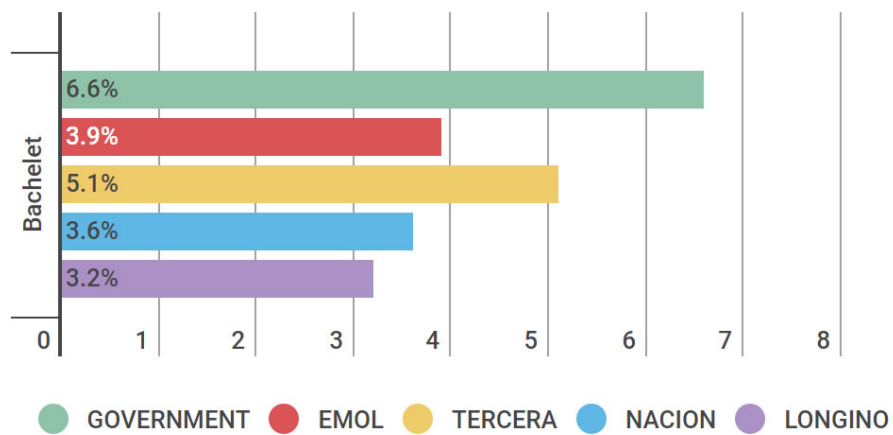
Figure 5.21. Proportion of the corpus using the “Human interest” topic by source.



Bachelet

Although the 20-topic solution provided a topic related to authorities, this topic (at 4.5% and ranked 14th) is made of stories and press releases related to President Bachelet – what she did and said regarding the disaster. It also includes female ministers that worked closely with her. Terms such as “Bachelet,” “president,” “zone,” and “Michelle” are among the high-probability, exclusive words in the topic. Documents in this topic come mostly from the government press releases and stories published by *La Tercera* (see Figure 5.22). For example: “President Michelle Bachelet makes decisions in the field after earthquake in northern Chile” (*Prensa Presidencia*, 2014, April 2; my translation); “Bachelet praises local authorities’ team work and announces trip to Iquique” (*La Tercera*, 2014, April 2; my translation). This might suggest the media coverage isolated the President instead of mentioning her in tandem with other officers.

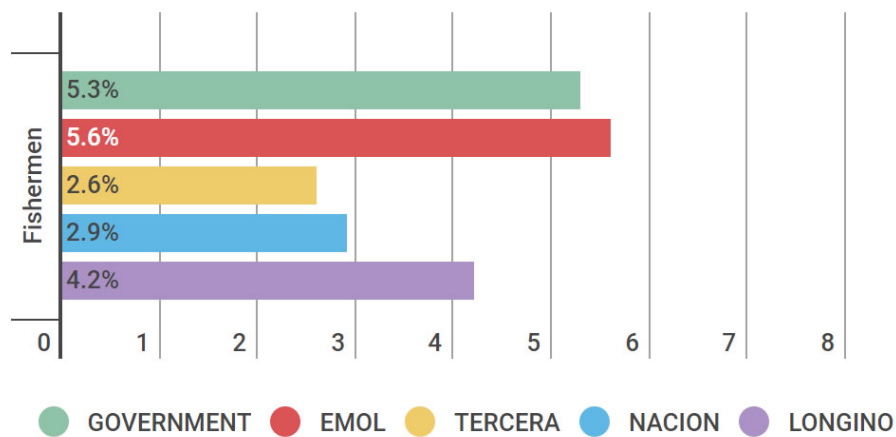
Figure 5.22. Proportion of the corpus using the “Bachelet” topic by source.



Fishermen

At 4.2%, this topic is ranked 15th and describes the government’s efforts to help fishermen in the north. The earthquake and subsequent tsunami damaged fishermen’s boats, preventing them from working. Stories related to this topic come mostly from the national newspaper EMOL and government press releases (see Figure 5.23) and include words such as “fisherman,” “fishing,” “boat,” and “cove.” Examples of published stories: “Government signs agreement with Iquique fishermen to begin the reconstruction after the earthquake” (EMOL, 2014, April 10; my translation); “Minister Cespedes said that 98 boats were damaged in Tarapacá” (EMOL, 2014, April 4; my translation).

Figure 5.23. Proportion of the corpus using the “Fishermen” topic by source.



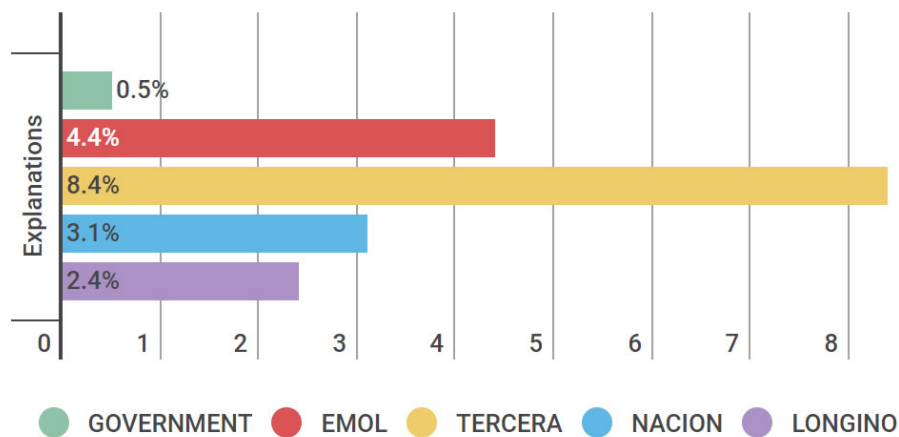
Explanations

This topic (at 3.9% and ranked 16th) comes from an attempt to explain the causes and consequences of the earthquake. Experts were cited in the news stories to describe the earthquake magnitude and the possibility of strong aftershocks in the nearby regions. News stories published by *La Tercera* also compared the 2014 earthquake with the 2010 disaster in Concepción, highlighting that the government “learned the lesson” on how to manage a natural disaster: “In contrast to what she did on 27/F²², the president decided to monitor the emergency from *La Moneda*²³” (*La Tercera*, 2014, April 2; my translation); “Committee of experts says a mega-earthquake in the northern coast is still a possibility” (EMOL, 2014, April 5; my translation). Top words in this topic are “earthquake,” “northern,” “expert,” “27/F,” and “seismic.” Most of the stories related to this topic come from *La Tercera* (see Figure 5.24), while the government reported on this topic minimally.

²² February 27, 2010 – date of the earthquake in Concepción.

²³ *La Moneda* Palace is the seat of the President of the Republic of Chile.

Figure 5.24. Proportion of the corpus using the “Explanations” topic by source.



Local commerce

At 3.8% and ranked 17th, stories related to this topic describe the situation regarding local commerce: changes in prices, open grocery stores, water delivery, etc. Some supermarket chains, such as Unimarc²⁴ and Walmart Chile, did not reopen their stores in Iquique, Arica²⁵, and Alto Hospicio²⁶ until April 3, to make sure it was safe for workers and customers to be open (*El Longino*, 2014, April 3). Around the same time (April 3), residents of Alto Hospicio reported a 200% increase in the price of bread and bottled water in some stores, while the price of a regular candle (needed to provide light during the power outage) went from 30 cents to \$1.50 (*La Tercera*, 2014; April 3). Top words in this topic include terms like “service,” “price,” “customer,” “water,” and “businessman.” For instance, “*Iquiqueños*²⁷ invade grocery stores and water delivery is restricted” (*El Longino*, 2014, April 4; my translation); “Unimarc opens its seven stores

²⁴ Unimarc is a Chilean grocery store chain.

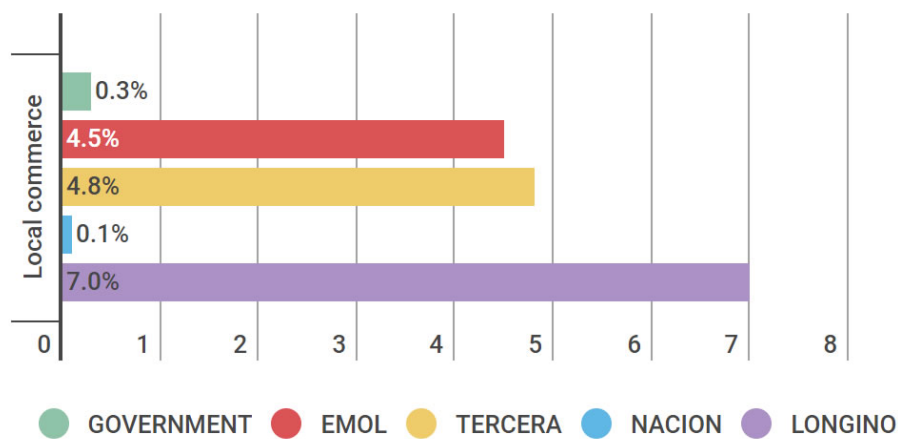
²⁵ Arica is a port city in northern Chile and the capital of the Arica and Parinacota Region.

²⁶ Alto Hospicio is a town located next to Iquique.

²⁷ People from Iquique.

in Iquique – with controlled access under the Chilean Army guard” (*El Longino*, 2014, April 3; my translation). Although most of the stories associated with this topic come from the local newspaper *El Longino*, the national outlets EMOL and *La Tercera* also reported on this topic (see Figure 5.25). Stories by *La Nación* and official press releases mostly ignored this topic.

Figure 5.25. Proportion of the corpus using the “Local commerce” topic by source.

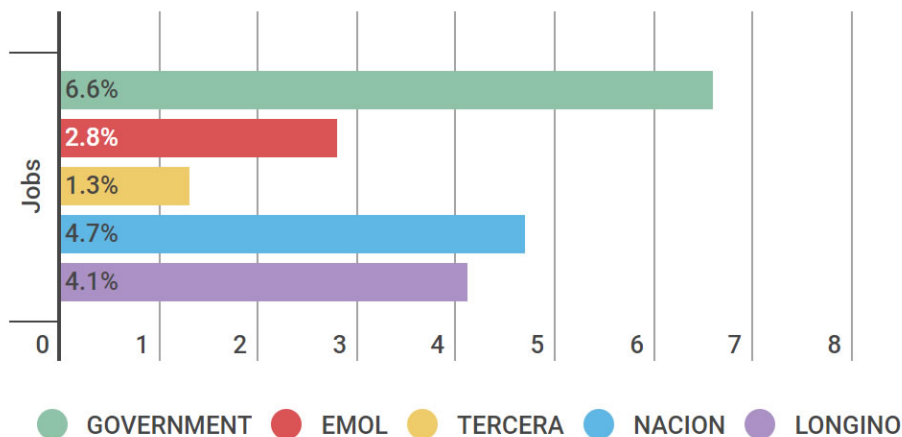


Jobs

This topic (at 3.8% and ranked 18th) comes mostly from government press releases (see Figure 5.26) and includes words like “job,” “worker,” “emergency,” “damaged” and “program.” It relates to the government’s efforts to help workers in areas that were affected by the disaster. It also describes government’s actions to penalize companies that did not allow workers to evacuate under the tsunami warning. For instance: “Minister Javiera Blanco said workers’ safety is a priority before resuming work” (Ministry of Labor and Social Security, 2014, April 8; my translation); “Banco

Chile and CAP²⁸ will be investigated for non-evacuated workers' complaints" (*La Nación*, 2014, April 3; my translation).

Figure 5.26. Proportion of the corpus using the “Jobs” topic by source.



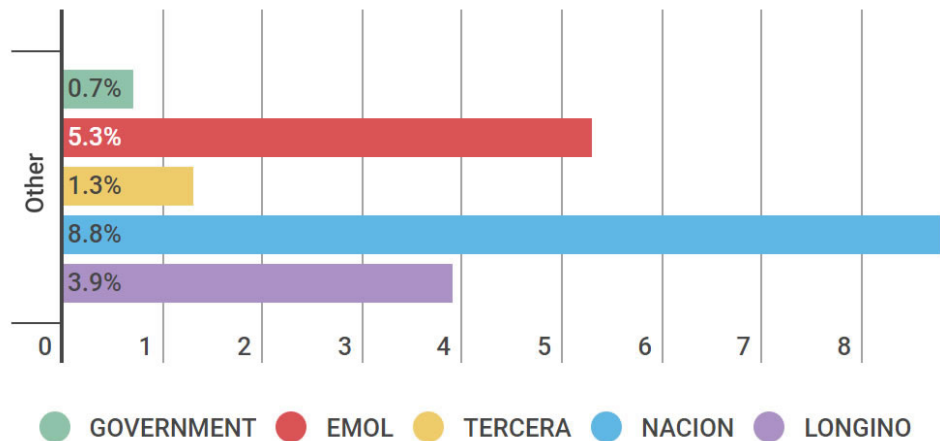
Other

At 3.5%, this is the second-to-last topic in the 20-topic solution. It is the only topic in the model that is not self-explanatory, as the top words do not provide a clear pattern. Some of the stories associated with this topic reported on disaster victims claiming compensation from insurance companies. For instance: “Insurance companies receive more than 1,500 claims for damaged houses after earthquake in the north” (*La Nación*, 2014, April 23; my translation). Other stories covered completely different issues, such as a concert in solidarity with the victims: “Minister Rincón will attend benefit concert in Iquique” (*La Nación*, 2014, April 20; my translation), or stories about the problems of having the Dakar rally in damaged areas of northern Chile: “Dakar 2015 also victim of the earthquake that struck Iquique” (*El Longino*, 2014, April 6; my

²⁸ Banco Chile is a Chilean bank and financial services company. CAP is the acronym for *Compañía de Acero del Pacífico S.A.*, a Chilean holding company of the mining and steel sectors.

translation). This heterogeneity makes the topic difficult to understand. As no specific pattern was found, this topic was not considered in further analyses.

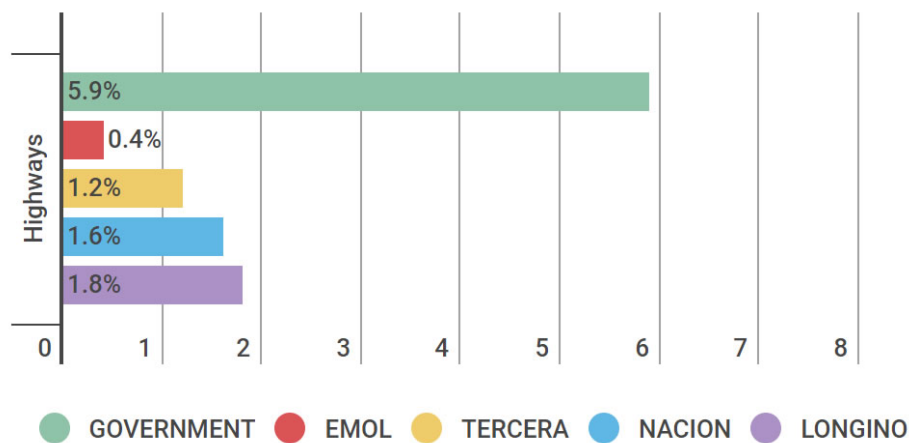
Figure 5.27. Proportion of the corpus using the “Other” topic by source.



Highways

Finally, Highways is the last topic in the 20-topic solution, at 2.2%. Documents highly associated with this topic come mainly from the government press releases (see Figure 5.28), and describe road conditions. The Ministry of Public Works constantly communicated information regarding closed highways, landslides, and traffic. Consequently, top words in this topic include terms like “road,” “traffic,” “caution,” “sidewalk,” and “intersection.” For instance: “Ministry of Public Works informs about trafficability of the road in Tarapacá and Arica and Parinacota regions” (Ministry of Public Works, 2014, April 17; my translation).

Figure 5.28. Proportion of the corpus using the “Highways” topic by source.



Disaster news coverage by different outlets

Hypothesis 1 (H1) predicted that most of the stories covering the 2014 earthquake and tsunami in northern Chile occurred in the days immediately after the disaster. Out of the 705 earthquake-related stories published by the local newspaper *El Longino* and the national newspapers EMOL, *La Tercera*, and *La Nación* in April 2014, 445 stories were published between April 1 (the night of the disaster) and April 6, while 260 stories were published between April 7 and April 30. In other words, more than 60% of the news stories were published in the first five days after the disaster.

To determine if the distribution of news was significantly skewed toward the immediate aftermath of the disaster, a one-sample Chi-Square test was performed. One-sample Chi-Square tests are used to test whether the proportions of cases that fall into the categories of a variable are equal to the hypothesized values or significantly different from the values under the null hypothesis (Williams, 2007). If the null hypothesis were true, one would expect a similar number of stories each day or week of April 2014.

Results from the one-sample Chi-Square test indicated the distribution of stories in April 2014 was far from being even each week. In Week 1 (from April 1 to April 8), 512 stories were published. In Week 2 (from April 9 to April 15), 87 stories were published. In Week 3 (from April 16 to April 22), 74 stories were published. And in Week 4 (from April 23 to April 30), only 30 stories were published. Under the null hypothesis, the distribution of stories should be 176 stories each week. But since most of the stories (73%) were published in Week 1, **H1 was supported** ($\chi^2(3)=868$, $p<.001$). Previous studies have found that news coverage of disasters is not sustained for long, and most of the stories covering disasters occur within the immediate aftermath of the event (Houston et al., 2012; Kivikuru, 2006). As expected, the news coverage of the 2014 earthquake and tsunami in northern Chile was heavily concentrated in the first week—especially the first five days—after the occurrence of the disaster.

The semi-structured interviews with journalists provide context to this finding. For some, the characteristics of the earthquake and tsunami did not allow for long-lasting coverage. As compared to other earthquakes in the region (such as the 27/F or the disaster in Haiti in 2010), the 2014 disaster was not as devastating or as fatal. Once the number of victims was established and the tsunami alert was canceled, there was no other extraordinary information to focus on.

“The news coverage lasted around two weeks... three maximum. It was mostly about the victims and the help they received, but we did not write analytical pieces about the earthquake. The stories that came after that were about the reconstruction, but nothing beyond that. There was no new information to keep reporting on” (journalist from *La Nación*; personal communication, April 10, 2017; my translation).

For some others, covering the disaster during a short time had less to do with the disaster itself, and more with the routines that are normalized in the newsroom. News is, by definition, timely and audiences want to know what is happening now (Lee et al., 2005). Then, newsworthiness is often linked with immediacy, and in-depth coverage requires time, which does not coincide with immediacy. That is why disasters are usually covered on episodic ways instead of providing a more thematic understanding of the disaster:

“There is this established belief about what is news, and about what stories sell more papers. No one makes an attempt to reflect on what’s going to happen later; no one cares. The media are incapable of reflecting on that, because we are more interested in immediacy. Further, there is no time to follow up” (journalist from *La Tercera*; personal communication, March 28, 2017; my translation).

Hypothesis 2 (H2) predicted a relationship between lifespan of the coverage and news organization, such that local newspaper *El Longino* had a longer lifespan than national newspapers EMOL, *La Tercera*, and *La Nación*. If we look at the news stories published by each outlet, we observe that *La Tercera* published 196 earthquake-related stories in April 2014. The majority of those stories (85%) were published in Week 1 (from April 1 to April 8). EMOL published 187 stories, and 153 of those (82%) were published in Week 1. *La Nación* published 100 earthquake-related stories, 72 of those in Week 1 (72%). And *El Longino* published 222 stories in April, and around half of those (55%) were published in Week 1 (see Table 5.1).

Table 5.1. Distribution of stories each week, by news outlet (N=705).

Source	Week 1	Week 2	Week 3	Week 4	Total	N
EMOL	81.80%	9.10%	5.90%	3.20%	100.00%	187
<i>La Tercera</i>	85.10%	7.70%	6.20%	1.00%	100.00%	196
<i>La Nación</i>	72.00%	12.00%	10.00%	6.00%	100.00%	100
<i>El Longino</i>	55.00%	19.40%	18.50%	7.20%	100.00%	222
Total	72.80%	12.40%	10.50%	4.30%	100.00%	705

To determine if the lifespan of the earthquake news coverage was significantly related to the type of news organization, a Chi-Square test was performed to compare the distribution of the news stories in each week by the four news outlets observed in this study. As illustrated in Table 5.1, the local newspaper *El Longino* was the only outlet that kept a more balanced distribution of stories each week. Although its coverage is also skewed toward the first week after the disaster (as predicted by H1), the proportion of stories published during the following weeks was significantly larger than the proportion in national newspapers ($\chi^2(9)=60.7, p<.001$). Consequently, **H2 was supported.**

Hypothesis 3 (H3) predicted differences between the local newspaper *El Longino* and the national newspapers EMOL, *La Tercera*, and *La Nación* regarding the topics emphasized by each news outlet when covering the 2014 earthquake and tsunami in northern Chile. Specifically, H3a predicted that topics emphasized by national newspapers EMOL, *La Tercera*, and *La Nación* were significantly more negative than those emphasized by local newspaper *El Longino*, while H3b predicted that topics emphasized by *El Longino* were more focused on people's needs.

A one-way analysis of variance (ANOVA) was performed to determine whether the national news outlets covered the disaster differently from the local newspaper. The one-way ANOVA determines whether there are any statistically significant differences between the means of three or more independent groups (Field, 2007). In the case of this

study, each one of the topics found in RQ1 (see Figures 5.7 and 5.8) was treated as a variable, and each newspaper was treated as an independent group. The analysis allowed for the comparisons of the means of each topic in each newspaper. Then, 19 one-way ANOVA analyses were run, one for each topic²⁹. Results indicated the local news coverage was significantly different than the national news coverage in 11 out of 19 topics (see Table 5.2). Post hoc tests (Bonferroni – multiple comparisons) revealed the local newspaper *El Longino* gave significantly more coverage to the topics of Help ($F_{(3, 701)} = 14.640, p < .001$), Schools ($F_{(3, 701)} = 4.539, p < .01$), Reconstruction ($F_{(3, 701)} = 6.309, p < .001$), Medical assistance ($F_{(3, 701)} = 5.203, p < .001$), and Local commerce ($F_{(4, 874)} = 4.157, p < .01$), compared to the national outlets (see Appendix B). In contrast, the national newspapers gave significantly more coverage to the topics of Seismology ($F_{(3, 701)} = 6.016, p < .001$), Tsunami ($F_{(3, 701)} = 15.087, p < .001$), Flights ($F_{(3, 701)} = 5.741, p < .001$), Human interest ($F_{(3, 701)} = 4.288, p < .01$), and Explanations ($F_{(3, 701)} = 5.493, p < .001$), compared to *El Longino* (see Appendix B). Then, topics with higher levels of drama or human impact were covered significantly more by the national media, although this does not necessarily mean such topics are negative. Conversely, *El Longino* did pay significantly more attention to topics that bring people together, such as help or assistance. Consequently, **H3a was not supported while H3b was supported.**

²⁹ Nineteen instead of 20 as the “Other” topic was not included in the analysis.

Table 5.2. One-way analyses of variance. Comparison of topic coverage by news outlet (N=705)

Topic	News outlet	Mean	SD	F
<i>Authorities</i>	EMOL	5.6%	15.1	1.062
	<i>La Tercera</i>	7.6%	17.8	
	<i>La Nación</i>	4.5%	13.7	
	<i>El Longino</i>	5.4%	17.5	
<i>Seismology</i>	EMOL	11.1%	25.7	6.016***
	<i>La Tercera</i>	8.3%	21.1	
	<i>La Nación</i>	15.0%	31.1	
	<i>El Longino</i>	4.3%	16.8	
<i>Tsunami</i>	EMOL	14.7%	27.5	15.087***
	<i>La Tercera</i>	9.6%	21.7	
	<i>La Nación</i>	11.2%	25.8	
	<i>El Longino</i>	1.3%	6.0	
<i>Valparaíso</i>	EMOL	2.2%	10.6	1.314
	<i>La Tercera</i>	5.1%	16.8	
	<i>La Nación</i>	4.2%	16.9	
	<i>El Longino</i>	4.7%	16.4	
<i>Flights</i>	EMOL	9.2%	23.7	5.741***
	<i>La Tercera</i>	7.1%	19.3	
	<i>La Nación</i>	7.2%	19.4	
	<i>El Longino</i>	2.1%	8.3	
<i>Help</i>	EMOL	3.7%	12.3	14.640***
	<i>La Tercera</i>	2.8%	9.9	
	<i>La Nación</i>	3.9%	12.9	
	<i>El Longino</i>	12.4%	24.6	
<i>Housing</i>	EMOL	3.3%	12.9	1.656
	<i>La Tercera</i>	5.8%	16.6	
	<i>La Nación</i>	3.8%	14.5	
	<i>El Longino</i>	6.2%	16.3	
<i>Schools</i>	EMOL	4.4%	16.7	4.539**
	<i>La Tercera</i>	5.4%	16.7	
	<i>La Nación</i>	0.6%	3.1	
	<i>El Longino</i>	8.5%	24.6	

Table 5.2. (Continued).

Topic	News outlet	Mean	SD	F
<i>Reconstruction</i>	EMOL	1.6%	10.2	6.309***
	<i>La Tercera</i>	1.9%	8.0	
	<i>La Nación</i>	2.5%	13.2	
	<i>El Longino</i>	6.6%	18.8	
<i>Medical assistance</i>	EMOL	3.6%	14.7	5.203***
	<i>La Tercera</i>	2.3%	10.5	
	<i>La Nación</i>	7.6%	21.8	
	<i>El Longino</i>	8.0%	20.8	
<i>Jailbreak</i>	EMOL	6.8%	19.2	0.936
	<i>La Tercera</i>	6.8%	20.0	
	<i>La Nación</i>	5.2%	16.4	
	<i>El Longino</i>	4.3%	15.5	
<i>Water</i>	EMOL	2.7%	12.4	2.167
	<i>La Tercera</i>	4.2%	15.9	
	<i>La Nación</i>	2.6%	13.5	
	<i>El Longino</i>	6.4%	20.5	
<i>Human interest</i>	EMOL	4.3%	14.6	4.288**
	<i>La Tercera</i>	8.4%	20.9	
	<i>La Nación</i>	6.9%	16.5	
	<i>El Longino</i>	3.2%	10.9	
<i>Bachelet</i>	EMOL	3.9%	14.6	0.578
	<i>La Tercera</i>	5.1%	18.1	
	<i>La Nación</i>	3.6%	14.0	
	<i>El Longino</i>	3.2%	13.4	
<i>Fishermen</i>	EMOL	5.6%	20.0	1.280
	<i>La Tercera</i>	2.6%	14.2	
	<i>La Nación</i>	2.9%	11.8	
	<i>El Longino</i>	4.2%	14.3	
<i>Explanations</i>	EMOL	4.4%	14.7	5.493***
	<i>La Tercera</i>	8.4%	21.1	
	<i>La Nación</i>	3.1%	11.7	
	<i>El Longino</i>	2.4%	12.9	
<i>Local commerce</i>	EMOL	4.5%	14.4	4.157**
	<i>La Tercera</i>	4.8%	16.3	
	<i>La Nación</i>	0.1%	0.4	
	<i>El Longino</i>	7.0%	20.8	

Table 5.2. (Continued).

Topic	News outlet	Mean	SD	F
Jobs	EMOL	2.8%	13.2	2.206
	<i>La Tercera</i>	1.3%	7.9	
	<i>La Nación</i>	4.7%	17.8	
	<i>El Longino</i>	4.1%	13.7	
Highways	EMOL	0.4%	2.3	1.167
	<i>La Tercera</i>	1.2%	7.6	
	<i>La Nación</i>	1.6%	8.7	
	<i>El Longino</i>	1.8%	9.8	

These findings suggest the most important difference between local and national news coverage is the scope of the information. Topics that were too local in nature (such as the need for reconstruction, the situation in the grocery stores, or the supplies donated to help the victims) were generally ignored by the national media. The themes emphasized by EMOL, *La Tercera*, and *La Nación* had much more to do with political aspects of the disaster (such as the Explanations topic), consequences for readers not necessarily in the north (the Flights topic, for instance), and information related to the disaster itself (the Seismology and Tsunami topics), which might be assumed as relevant for the entire country. The Human interest topic, one of the most prominent topics in disaster news coverage (Houston et al., 2012; Wenger, et al., 1980; Yang, 2012), was reported mostly by *La Tercera* but it was not one of the top topics in the model. A reporter from *La Tercera* explained their focus on this topic:

“Many of the stories focused on tragedy. Drama, pictures, women crying. All those things appealing to people’s feelings” (journalist from *La Tercera*; personal communication, March 28, 2017; my translation).

Results also showed some differences between national newspapers *La Tercera* and *La Nación*. *La Tercera*, a news outlet usually associated with the right wing (Gronemeyer & Porath, 2015) emphasized the Explanations topic ($F_{(3, 701)} = 5.493$, $p < .001$) significantly more than *La Nación*, which is seen as a paper affiliated with the left wing (Sorensen, 2011). Although *La Nación* published stories associated with this topic, it did not compare the 2014 earthquake and tsunami with the 2010 disaster. In the semi-structured interviews, a journalist from *La Nación* indicated the organization did not employ enough reporters to write in-depth pieces:

“We did not compare the 2014 disaster with the one in 2010. The number of people we had on our staff was small – we could not devote time to write in-depth stories about the earthquake. Also, the 2014 disaster felt a little too far away from us, while the fire in Valparaíso, occurring soon after the earthquake, felt much closer. The media attention quickly shifted to Valparaíso” (journalist from *La Nación*; personal communication, April 10, 2017; my translation).

La Tercera did have time and resources to compare disasters. According to a reporter from this paper, writing about the 2010 earthquake and tsunami was a political decision where the goal was to track President Bachelet’s actions in 2014 and remind readers of the decisions she made in 2010.

“The coverage of the 2014 earthquake had a strong political angle. The President had just started her second term, and 27/F was still foremost on everyone’s minds. Knowing how Michele Bachelet would react to this new crisis became extremely important. I remember being in *La Moneda*³⁰ very late at night with my editor telling me I had to get on board the presidential aircraft, even if it meant I had to dress up as a flight attendant... I had to get to Iquique and see how she [the President] would

³⁰ *La Moneda* Palace is the seat of the President of the Republic of Chile.

act there” (journalist from *La Tercera*; personal communication, April 7, 2017, my translation).

Despite the differences described above, findings in Table 5.2 suggest several similarities. Nine out of 19 topics reported no differences between local and national coverage. In other words, local and national outlets emphasized nine themes in a similar way. The topics of Authorities, Valparaíso, Housing, Jailbreak, Water, Bachelet, Fishermen, Jobs and Highways received the same attention from both local and national newspapers. Some of these topics covered how the government reacted to the disaster (Authorities and Bachelet); some others described high-impact stories (such as the women’s jailbreak in Iquique and the fire in Valparaíso), while the remaining topics were related to local issues (damaged houses, water delivery, fishermen losing their boats during the tsunami, workers in danger, hazardous highways). Differences within national news outlets are even fewer, with the Explanations topic being the only one where national newspapers (specifically *La Tercera*) produced conflicting interpretations of the disaster. This suggests a high degree of “pack journalism,” where the standardization of disaster news coverage has led to homogeneous news content across seemingly independent media outlets (Bennett, 1996, 2003).

NEWS MEDIA COVERAGE VERSUS GOVERNMENT PRESS RELEASES

Hypothesis 4 predicted differences between the topics emphasized by the government, on the one hand, and the media, on the other. Findings from H3 revealed significant differences between local and national news coverage of the topics found in RQ1. Therefore, instead of combining the four newspapers into a single variable to measure *the media*, two variables were created to separately measure local and national

media. Nineteen one-way ANOVAs were performed to compare the topics emphasized by the government, local media, and national media.

Table 5.3 illustrates results from the one-way ANOVA analyses. Findings showed significant differences in 18 out of the 19 topics in the analysis. Post hoc tests (Bonferroni – multiple comparisons) indicated the government press releases emphasized the topics of Authorities ($F_{(2, 876)} = 10.329, p < .001$), Valparaíso ($F_{(2, 876)} = 19.599, p < .001$), Reconstruction ($F_{(2, 876)} = 23.852, p < .001$), and Highways ($F_{(2, 876)} = 12.433, p < .001$) significantly more than both the local and the national media. In contrast, the Local commerce topic ($F_{(2, 876)} = 10.226, p < .001$) was significantly more important for both local and national news coverage as compared to the official press releases (see Appendix C).

Regarding differences between government and national media, Bonferroni post hoc tests showed government press releases emphasized the topics of Jobs ($F_{(2, 876)} = 4.738, p < .01$) and Housing ($F_{(2, 876)} = 4.712, p < .01$) significantly more, while the national media coverage paid significantly more attention to the topics of Seismology ($F_{(2, 876)} = 17.786, p < .001$), Tsunami ($F_{(2, 876)} = 34.5, p < .001$), Jailbreak ($F_{(2, 876)} = 7.407, p < .001$), Human interest ($F_{(2, 876)} = 11.164, p < .001$), and Explanations ($F_{(2, 876)} = 10.065, p < .001$) (see Appendix C).

Compared to the local media, the government informed significantly less about the topics of Help ($F_{(2, 876)} = 24.517, p < .001$), Schools ($F_{(2, 876)} = 5.188, p < .01$), and Medical assistance ($F_{(2, 876)} = 5.313, p < .01$). No significant differences were found between government press releases and local and national press coverage regarding the topics of Flights³¹, Water³², Bachelet, and Fishermen (see Appendix C). Consequently,

³¹ There were significant differences between local and national media regarding the Flights topic, but not between the government and the media.

H4 was supported – the earthquake-related topics emphasized in the news media coverage were different from those emphasized in government press releases.

Table 5.3. One-way analyses of variance. Comparison of topic coverage by source (N=879)

Topic	Source	Mean	SD	F
<i>Authorities</i>	National Media	6.2%	16.0	10.329***
	Local Media	5.4%	17.5	
	Government	13.0%	25.2	
<i>Seismology</i>	National Media	10.8%	25.3	17.786***
	Local Media	4.3%	16.8	
	Government	0.9%	2.3	
<i>Tsunami</i>	National Media	11.9%	25.0	34.5***
	Local Media	1.3%	6.0	
	Government	1.2%	5.3	
<i>Valparaíso</i>	National Media	3.8%	14.8	19.599***
	Local Media	4.7%	16.4	
	Government	13.4%	25.5	
<i>Flights</i>	National Media	8.0%	21.1	8.995***
	Local Media	2.1%	8.3	
	Government	5.0%	13.0	
<i>Help</i>	National Media	3.4%	11.5	24.517***
	Local Media	12.4%	24.6	
	Government	4.3%	13.3	
<i>Housing</i>	National Media	4.4%	14.9	4.712**
	Local Media	6.2%	16.3	
	Government	8.9%	22.2	
<i>Schools</i>	National Media	4.0%	15.0	5.188**
	Local Media	8.5%	24.6	
	Government	4.1%	15.6	
<i>Reconstruction</i>	National Media	1.9%	10.1	23.852***
	Local Media	6.6%	18.8	
	Government	11.8%	25.9	

³² There were significant differences between local and national media regarding the Water topic, but not between the government and the media.

Table 5.3. (Continued).

Topic	Source	Mean	SD	F
<i>Medical assistance</i>	National Media	3.9%	15.1	5.313**
	Local Media	8.0%	20.8	
	Government	4.0%	12.5	
<i>Jailbreak</i>	National Media	6.5%	18.9	7.407***
	Local Media	4.3%	15.5	
	Government	1.0%	3.7	
<i>Water</i>	National Media	3.3%	14.2	3.156*
	Local Media	6.4%	20.5	
	Government	5.7%	18.1	
<i>Human interest</i>	National Media	6.5%	17.8	11.164***
	Local Media	3.2%	10.9	
	Government	0.8%	3.4	
<i>Bachelet</i>	National Media	4.3%	16.0	2.203
	Local Media	3.2%	13.4	
	Government	6.6%	18.7	
<i>Fishermen</i>	National Media	3.8%	16.3	0.493
	Local Media	4.2%	14.3	
	Government	5.3%	19.3	
<i>Explanations</i>	National Media	5.8%	17.2	10.065***
	Local Media	2.4%	12.9	
	Government	0.5%	3.5	
<i>Local commerce</i>	National Media	3.7%	13.8	10.226***
	Local Media	7.0%	20.8	
	Government	0.3%	2.3	
<i>Jobs</i>	National Media	2.6%	12.6	4.738**
	Local Media	4.1%	13.7	
	Government	6.6%	20.2	
<i>Highways</i>	National Media	1.0%	6.4	12.433***
	Local Media	1.8%	9.8	
	Government	5.9%	20.0	

Results in Table 5.3 suggest each source (local media, national media, and government) had its own pattern of coverage. The local newspaper *El Longino* devoted more coverage to local issues such as price increases and medical needs in the paper's

coverage area. National newspapers paid more attention to the political implications of the disaster and the human interest angle – inmates escaping from jail, families losing their houses, and fatalities caused by collapsing walls.

Governmental press releases emphasized the work of the authorities (mostly Bachelet’s ministers), the reconstruction in Valparaíso and Iquique, and the constant monitoring of workers, housing and highways. These topics were also reported by the national media but at a significantly lower rate.

Other topics were equally emphasized by the media and the government. Bachelet, for instance, is a topic that comprises 6.6% of the official press releases, 4.3% of the national media coverage, and 3.2% of the local news stories. According to Table 5.3, these proportions are not significantly different. Thus, while the government emphasized ministers and local officers significantly more than the media, President Bachelet was equally covered by the media and official press releases. Journalists from different newspapers attribute this emphasis to the unique circumstances of the event – having the same president dealing with two comparable natural disasters in two different terms:

“This happened when she started her second presidency, and the whole campaign of the runner-up candidate [right-wing candidate Evelyn Matthei] was about Bachelet’s role in 27/F blaming her for all those people who died in the 2010 tsunami. Maybe now it is not a hot topic, but in 2014 it was still relevant for the public opinion. It was seen as Michele Bachelet’s biggest problem. And then, right after she took office, another earthquake occurred. The natural, most obvious editorial decision was to cover the disaster from a political perspective” (journalist from *La Tercera*; personal communication, April 10, 2017; my translation).

“I remember that everyone was talking about that – the lessons learned from 2010, the government doing a much better job in 2014, a much faster first response to the disaster in the north. There was better organization to distribute food and supplies. I saw the government concerned about their public image, trying not to repeat the mistakes from 2010” (journalist from EMOL; personal communication, March 31, 2017; my translation).

LIFESPAN OF DOMINANT THEMES

Research question 2 (RQ2) explores the lifespan of each topic coverage. A dichotomous variable was created to measure immediate and subsequent coverage. More than 60% of the news stories were published in the first five days after the disaster. Then, stories published between April 1 and April 6, 2014 were coded as immediate coverage. Stories published between April 7 and April 30, 2014 were coded as subsequent coverage. Initially, the coverage variable was thought as a continuous variable, but due to the skewness of the distribution, creating a dichotomous variable was a more parsimonious option to measure the news coverage of the disaster. An independent-samples t-test was conducted to compare the means of each topic depending on the type of coverage (immediate/subsequent).

Table 5.4 illustrates the type of coverage by source: local media, national media, and government. In the case of local media, results indicated significant differences in five out of the 19 topics. According to the t-test, the topics of Authorities ($t=2.309$, $p<.01$) and Bachelet ($t=2.799$, $p<.01$) were covered significantly more in the days immediately after the earthquake, while the topics of Reconstruction ($t=-3.76$, $p<.001$), Medical assistance ($t=-3.8$, $p<.001$), and Jobs ($t=-2.371$, $p<.05$), were more prominent in the subsequent coverage of the disaster.

The national media showed a different pattern. According to Table 5.4, ten out of the 19 topics were emphasized differently depending on the type of coverage. The topics

of Authorities ($t=3.769, p<.001$), Tsunami ($t=8.587, p<.001$), Flights ($t=5.801, p<.001$), Jailbreak ($t=3.839, p<.001$), Human interest ($t=3.552, p<.001$), and Highways ($t=2.006, p<.05$) were covered significantly more in the days immediately after the earthquake, when the number of earthquake-related stories reached its peak. In contrast, the topics of Seismology ($t=-2.644, p<.01$), Valparaíso ($t=-3.233, p<.01$), Reconstruction ($t=-3.366, p<.001$), and Fishermen ($t=-2.353, p<.001$), were more prominent in the subsequent coverage of the disaster, when the number of stories started to decrease.

In the case of the official press releases, results indicated the government paid more attention to eight out of 19 topics depending on the type coverage. The topics of Authorities ($t=5.198, p<.001$), Seismology ($t=3.423, p<.001$), Tsunami ($t=2.977, p<.01$), Flights ($t=3.417, p<.001$), and Bachelet ($t=2.515, p<.05$) were emphasized significantly more during the immediate aftermath of the disaster. On the other hand, the topics of Valparaíso ($t=-2.86, p<.01$), Reconstruction ($t=-3.231, p<.01$), and Jobs ($t=-2.083, p<.05$) were more prominent in the subsequent coverage of the disaster.

Table 5.4. T-test. Comparison of topic coverage lifespan in news stories and press releases (N=879).

Topic	Coverage	Local Media			National Media			Government		
		Mean	SD	T-test	Mean	SD	T-test	Mean	SD	T-test
<i>Authorities</i>	Immediate	8.9%	22.1	2.309*	7.4%	17.9	3.769***	22.1%	31.5	5.198***
	Subsequent	2.9%	13.0		2.9%	8.2		3.7%	10.2	
<i>Seismology</i>	Immediate	7.0%	21.4	1.829	8.4%	19.7	-2.644**	1.4%	2.9	3.423***
	Subsequent	2.4%	12.5		17.3%	35.9		0.3%	1.1	
<i>Tsunami</i>	Immediate	2.4%	8.9	1.961	15.5%	28.0	8.587***	2.3%	7.3	2.977**
	Subsequent	0.5%	2.6		1.8%	6.8		0.0%	0.1	
<i>Valparaíso</i>	Immediate	2.8%	14.4	-1.459	2.0%	10.4	-3.233**	8.1%	19.6	-2.86**
	Subsequent	6.0%	17.5		8.6%	22.3		18.9%	29.5	
<i>Flights</i>	Immediate	3.4%	9.6	1.841	10.2%	23.7	5.801***	8.2%	16.1	3.417***
	Subsequent	1.2%	7.2		1.7%	8.9		1.8%	7.5	
<i>Help</i>	Immediate	11.0%	25.6	-0.678	3.5%	12.7	0.342	4.1%	14.7	-0.151
	Subsequent	13.3%	23.9		3.1%	7.3		4.4%	11.8	
<i>Housing</i>	Immediate	4.2%	13.0	-1.587	3.5%	13.3	-1.846	5.9%	15.7	-1.838
	Subsequent	7.6%	18.2		6.8%	18.4		12.1%	27.0	
<i>Schools</i>	Immediate	6.0%	20.6	-1.323	4.0%	15.1	-0.007	4.9%	16.2	0.665
	Subsequent	10.3%	26.9		4.0%	14.9		3.3%	15.0	
<i>Reconstruction</i>	Immediate	1.7%	9.8	-3.76***	0.5%	3.9	-3.366***	5.6%	16.7	-3.231**
	Subsequent	10.0%	22.4		5.9%	18.0		18.1%	31.7	
<i>Medical assistance</i>	Immediate	2.7%	8.1	-3.8***	3.1%	12.7	-1.564	3.3%	10.2	-0.704
	Subsequent	11.7%	25.6		6.1%	20.3		4.7%	14.5	
<i>Jailbreak</i>	Immediate	6.8%	20.2	1.763	7.9%	21.0	3.839***	1.4%	4.0	1.26
	Subsequent	2.6%	11.1		2.4%	10.3		0.7%	3.4	

Table 5.4. (Continued).

Topic	Coverage	Local Media			National Media			Government		
		<i>Mean</i>	<i>SD</i>	<i>T-test</i>	<i>Mean</i>	<i>SD</i>	<i>T-test</i>	<i>Mean</i>	<i>SD</i>	<i>T-test</i>
<i>Water</i>	Immediate	9.5%	24.3	1.744	2.9%	12.7	-0.902	6.2%	15.5	0.38
	Subsequent	4.3%	17.2		4.3%	17.5		5.2%	20.5	
<i>Human interest</i>	Immediate	4.8%	14.4	1.573	7.8%	19.8	3.552***	1.0%	2.9	0.643
	Subsequent	2.2%	7.4		3.0%	9.7		0.7%	3.8	
<i>Bachelet</i>	Immediate	6.8%	20.0	2.799**	5.0%	17.0	1.901	10.0%	22.8	2.515*
	Subsequent	0.8%	4.0		2.3%	12.7		3.0%	12.4	
<i>Fishermen</i>	Immediate	3.1%	12.3	-0.97	2.5%	13.3	-2.353*	4.1%	17.0	-0.835
	Subsequent	5.0%	15.5		7.5%	22.4		6.5%	21.3	
<i>Explanations</i>	Immediate	2.3%	13.5	-0.011	6.1%	17.5	0.751	0.5%	2.6	0.029
	Subsequent	2.4%	12.6		4.8%	16.2		0.5%	4.3	
<i>Local commerce</i>	Immediate	9.7%	25.2	1.519	3.7%	14.2	-0.062	0.5%	3.2	1.418
	Subsequent	5.1%	17.1		3.7%	12.9		0.0%	0.1	
<i>Jobs</i>	Immediate	1.7%	8.4	-2.371*	1.9%	11.4	-1.827	3.4%	14.4	-2.083*
	Subsequent	5.7%	16.1		4.6%	15.2		9.8%	24.5	
<i>Highways</i>	Immediate	3.6%	15.1	1.88	1.2%	7.4	2.006*	6.6%	19.0	0.463
	Subsequent	0.6%	1.7		0.4%	1.5		5.2%	21.1	

Some of these differences are merely a reflection of time – events that occurred either before or after April 6 and, therefore, could not receive both immediate and subsequent coverage. Many stories about the tsunami warning and preventive evacuation were published the night of April 1, right after the earthquake. Twenty-four hours later, the night of April 2, a 7.6-magnitude earthquake struck the northern coast again. This was the strongest aftershock after the April 1 earthquake and triggered panic among residents and a new tsunami alert. Consequently, another set of tsunami-related stories and press releases were put out by the national media and the government on April 3. The subsequent aftershocks did not have the magnitude to generate tsunami waves, so the topic did not receive more coverage after April 6. Stories comparing the 2014 tsunami with the one in 2010 were captured by the Explanations topic, which was consistently covered by the national media throughout the month.

In contrast, the Valparaíso topic received significantly more coverage in the second period, mostly because the fire in Valparaíso happened on April 12. This topic is not just about the fire but about the government’s plan to help the victims of the fire as well as the earthquake. Then, some stories not involving Valparaíso are also part of this topic and were covered before April 6, but the majority of the corpus associated with this topic came from stories and press releases published after April 6.

Other topics reflect an actual pattern of coverage. For instance, the topics mostly covered by national media received significantly more attention either in the immediate coverage (such as Flights, Jailbreak, and Human interest) or throughout the entire analyzed period (like Seismology and Explanations), but no topics were significantly prominent only in the subsequent coverage. In other words, no new topics emerged after April 6, and if they did, they did not catch significant national media coverage.

Conversely, topics emphasized mostly by local media were covered throughout the entire month (such as Schools, Water, Local commerce, and Help) or significantly more after April 6 (Medical assistance), but no topics received significantly more local coverage before April 6.

Topics mostly emphasized by the government were either covered significantly more after April 6 (such as Valparaíso, Reconstruction, and Jobs), or their coverage remained constant through the entire analyzed period (like Housing and Highways). Only the Authorities topic received more attention before April 6.

THE ROLE OF IDEOLOGY AND PAST EVENTS

Previous research on disaster coverage found journalists use contextual historical narratives to provide background knowledge and imply causality between past and present (Su, 2012). The use of previous natural disasters to explain current ones was tested in Hypothesis 5 (H5), which predicted that ideology would affect the use of past events – the more adversarial the outlet was to President Bachelet’s government, the more the outlet’s coverage used the 27/F disaster as a benchmark to explain the 2014 earthquake and tsunami in northern Chile.

Topics found in RQ1 show that previous disasters were indeed discussed in the news coverage. The Explanations topic (see Figures 5.8 and 5.24) contains stories providing geological information to understand the disaster, interviews with seismologists, and descriptions of previous earthquakes in different parts of the country. But it also contains stories analyzing the earthquake and subsequent tsunami in Concepción on February 27, 2010 (27/F). As described at the beginning of this chapter, 27/F occurred during the last days of Michelle Bachelet’s first presidency. When the 2014 earthquake struck the northern coast during the first days of Bachelet’s second term,

stories published by the national newspaper *La Tercera* reminded readers of the government's performance in 2010. In one of the stories published just a couple of hours after the 2014 earthquake, *La Tercera* described the expected tsunami waves in different locations over the coast. The last paragraph read "At least the lessons learned from the 2010 tragedy seems to bring calm to authorities and citizens" (*La Tercera*, 2014, April 1; my translation). The next day, *La Tercera* published a story comparing Bachelet's actions during both disasters: "President Bachelet's performance: differences between 27/F and the earthquake and tsunami in the north" (*La Tercera*, 2014, April 1; my translation). *La Tercera* also obtained quotes from the opposition, who attributed the successful crisis management in 2014 not to Bachelet's team, but to the changes implemented by former President Piñera during his 2010-2014 term: "UDI Senator and crisis management: 'The good work from the previous President is evident'" (*La Tercera*, 2014; April 2).

A one-way ANOVA determined the government and the four newspapers in this study emphasized the Explanations topic differently ($F_{(4, 874)} = 8.028, p < .01$), as illustrated in Table 5.5. Although both local and national news outlets reported on the Explanations topic, Bonferroni post hoc tests show *La Tercera* covered this topic significantly more (see Appendix B). In addition to this, a manual examination of the stories indicated *La Tercera* was the only outlet using the 2010 earthquake as a benchmark to explain the 2014 disaster in northern Chile. Therefore, **H5 was partially supported**, as only one of the two right-wing newspapers in this study relied on the 2010 disaster to provide context for the 2014 earthquake and tsunami.

Table 5.5. One-way analysis of variance. Comparison of topic coverage by source (N=879)

Topic	Source	Mean	SD	F
<i>Explanations</i>	EMOL	4.4%	14.7	8.028***
	<i>La Tercera</i>	8.4%	21.1	
	<i>La Nación</i>	3.1%	11.7	
	<i>El Longino</i>	2.4%	12.9	
	Government	0.5%	3.5	

In the semi-structured interviews, journalists from *La Tercera* mentioned two reasons to bring the 2010 disaster to the readers’ attention. First, the paper favors thematic analysis over episodic coverage as much as possible. That explains why most of the stories associated with the Explanations topic went beyond the mere description of current events:

“*La Tercera* is always providing context, doing comparative analysis, using infographics. It’s also a way to distance itself from *El Mercurio*. The editor is constantly expecting you to get information *El Mercurio* doesn’t have” (journalist from *La Tercera*; personal communication, March 31, 2017; my translation).

Second, reporters indicated the right-wing orientation of the paper plays a significant role when it comes to President Bachelet. Being Michele Bachelet a leader from the center-left coalition that ruled the country between 1990 until 2010, and then again from the 2014-2018 term, *La Tercera* might be particularly severe in its watchdog role:

“*La Tercera* has made its goal to expose President Bachelet. We did a lot of comparative analysis during the 2014 disaster, but behind such analysis was the intention of exposing the President. The paper likes seeing Bachelet weak” (journalist from *La Tercera*; personal communication, March 31, 2017; my translation).

Research question 3 (RQ3) asked whether the government used the 2010 earthquake in southern Chile as a benchmark to explain the actions taken during the 2014 earthquake and tsunami in the north. Results from Table 5.5 indicate that less than 1% of government press releases covered the Explanations topic. Similarly, a manual review of all the press releases analyzed in this study showed there was no mention of the 2010 disaster in any of the official releases. Consequently, the government did not use the 2010 earthquake as a benchmark to explain the 2014 disaster in northern Chile.

FRAMING DISASTER: MEDIA AND GOVERNMENT FRAMES

Finally, Research question 4 (RQ4) asked how a) the media and b) the government framed the disaster. To answer RQ4a and 4b, findings presented in this chapter were examined under Entman’s (1993) definition of frames and framing functions.

According to Entman, frames perform four functions: they define problems, identify causes, offer moral judgments, and suggest solutions. Frames may not necessarily include all four functions, and the omission of any of these functions are as critical as inclusions in guiding the reception of a message (Entman, 1993).

As discussed above, national newspapers paid more attention to the characteristics of the earthquake and tsunami (such as magnitude and scope), and the political implications of the disaster (especially the implications for President Bachelet). Although not directly, the news coverage suggested that blame could be attributed to human actions

based on the mistakes made in 2010. As such, these topics define problems and diagnose causes, performing two framing functions – *problem definition* and *causal interpretation*. Although to a lesser extent, the national coverage also focused on the human-interest angle reporting on disaster consequences: inmates escaping from jail, families losing their houses, and fatalities caused by collapsing walls. Describing effects of the disaster corresponds with the framing function of *moral evaluation*.

On the other hand, the government emphasized the work of the authorities (mostly Bachelet's ministers), the reconstruction in Valparaíso and Iquique, and the constant monitoring of workers, housing and highways. These topics describe the official response to the disaster and the solutions implemented to deal with the consequences. In the language of framing, the government topics suggest remedies for the problems identified by the media providing *treatment recommendation*.

The government topics were also reported by the national media, but at a significantly lower rate. There was much more consonance between the government and local media, where no differences were found in terms of problem definition or treatment recommendation. The problem was a natural disaster, and the solution was provided by the government's efforts to help citizens and rebuild damaged areas. Local coverage, however, was more specific in terms of moral judgment. Descriptions of price increases, schools unable to resume classes, and health problems are examples of the local media evaluating causal agents and their effects. In the language of framing, these are *moral evaluations*.

Besides the source of the information, the type of coverage was also relevant to define framing functions. Topics related to *problem definition* and *causal interpretation* received more attention in immediate coverage (such as the Tsunami topic) or were consistently covered over the month (such as Explanations and Seismology topics).

Topics related to *moral evaluation* were also covered throughout the month (like Schools, Water, and Local commerce), while topics associated with *treatment recommendation* received more attention in the subsequent coverage.

SUMMARY

This chapter focused on the automated content analysis of 174 government press releases and 705 news stories published by four Chilean newspapers. By using Structural Topic Modeling (STM), the analysis found 20 topics that were prominent in the news media coverage as well as in the information released by the government. Nineteen³³ of these topics were used in the subsequent analyses based on interpretability and meaning: Authorities, Seismology, Tsunami, Valparaíso, Flights, Help, Housing, Schools, Reconstruction, Medical assistance, Jailbreak, Water, Human interest, Bachelet, Fishermen, Explanations, Local commerce, Jobs, and Highways.

Although topics may be ranked based on the proportion of the corpora using each topic, such ranking varies significantly depending on the source of the information and the type of coverage. For instance, the Seismology topic was used by 7.2% of the corpora. Yet, less than 1% of the government press releases used this topic while 15% of *La Nación's* news stories contained this topic. Then, STM identified the themes addressed in the corpora, while the subsequent statistical analyses identified the nuances of each theme. Figure 5.29 summarizes such nuances considering source and type of coverage.

In the immediate aftermath of the 2014 earthquake, information released by the Chilean government emphasized the authorities' first response to the disaster. As time passed, the focus shifted to long-term solutions needed to address the disaster

³³ The "Other" topic was dropped from the analysis.

consequences: jobs, reconstruction and help for victims in Iquique and Valparaíso. Housing and highway issues were consistently covered throughout the analyzed time frame (April 2014).

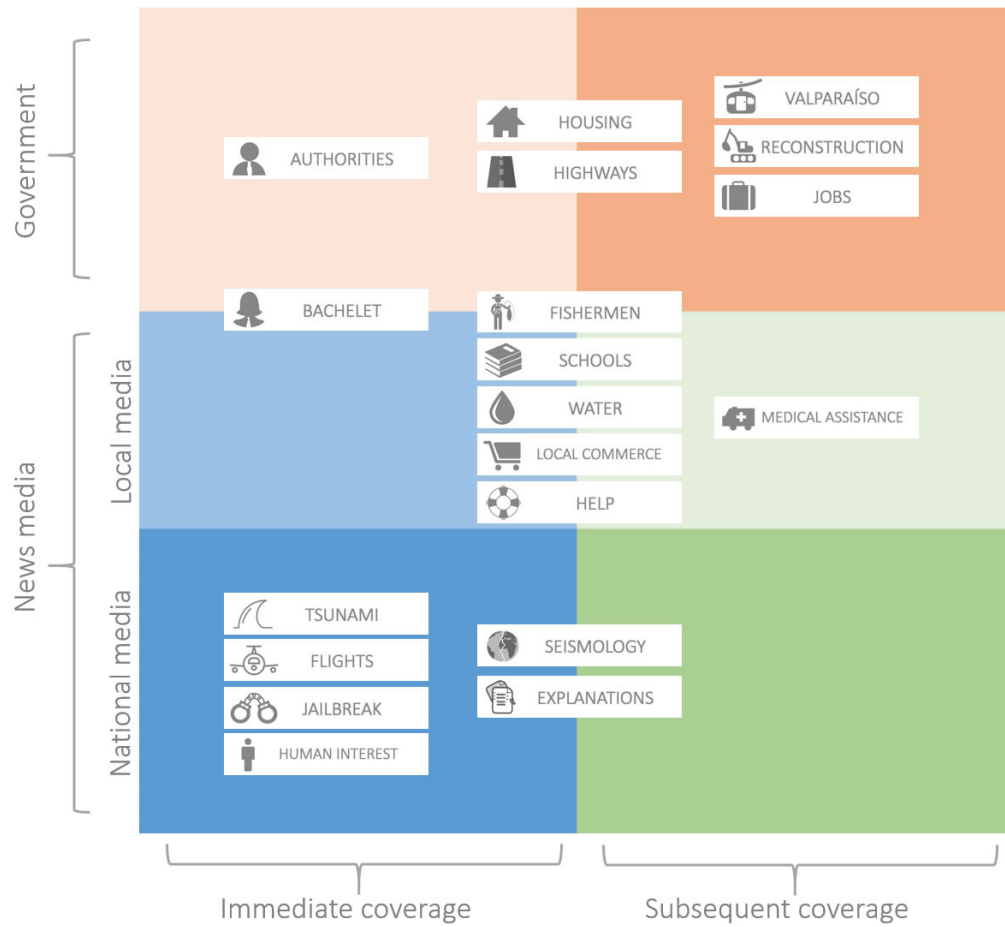
The tsunami and preventive evacuation of Chile's northern coast were heavily covered by national newspapers immediately after the 2014 earthquake. Canceled flights, inmates escaping from a women's prison in Iquique, and earthquake fatalities were also part of the immediate national media coverage. The earthquake's magnitude, background information, and comparisons with previous disasters were themes consistently covered throughout April 2014. No new themes emerged in the national coverage after April 6.

Local media coverage focused significantly more on local issues: damages to schools, lack of water availability, price increases for items such as food and housing, and requests for help were regularly covered throughout the month. Issues related to medical assistance were the only topics emerging after April 6.

President Bachelet was similarly highlighted by the government, local, and national media in the immediate disaster coverage. The analysis found no differences in the coverage of fishermen – the three sources paid similar levels of attention to this topic throughout the month. On average, local coverage lasted longer than did national coverage.

In terms of framing functions, national newspapers highlighted problems and causes thereof. Both national and local media discussed moral evaluations, while the government omitted defining problems, identifying causes, or making judgments as the official information focused on providing solutions.

Figure 5.29. Summary of topics found in Chapter 5, by source and type of coverage (N=879).



RESULTS

Chapter 6. Public Opinion Frames

This chapter focuses on news readers' comments posted to earthquake-related stories published during the month of April 2014. As a matter of record, neither *El Longino* nor the Chilean government's websites allow news readers to post comments. Thus, this dissertation studied comments posted to news stories from national newspapers only: EMOL, *La Tercera*, and *La Nación*. Comments were retrieved directly from the newspapers' websites and were analyzed using both automated content analysis and qualitative textual analysis.

In this chapter, I content analyze comments using Structural Topic Models (Roberts et al., 2014a) to identify the most prominent topics discussed by Chilean public opinion regarding the 2014 earthquake and tsunami. I compare the distribution of topics by source to identify if comments differ depending on the ideology of each newspaper.

Second, I compare the topics found in comments with those found in media coverage and government press releases (see Chapter 5) to assert the extent to which both sets of topics relate to each other.

Third, I use qualitative textual analysis to achieve a better representation of the public discussion of the earthquake-related news. Based on grounded theory and the constant comparative method, the analysis followed an iterative process where comments were examined in several coding cycles to identify patterns and provide meaningful responses to the questions asked in this chapter (Glaser & Strauss, 1967; Tracy, 2013).

Finally, I use semi-structured interviews with journalists working for the three national newspapers included in this study (EMOL, *La Tercera*, and *La Nación*) to provide context to the findings.

As described in previous chapters, EMOL³⁴ is the online version of *El Mercurio*, a news outlet historically linked to the Chilean right wing and considered the most important newspaper in the country (Mönckeberg, 2009). *La Tercera* is also considered a right-wing outlet and is *El Mercurio's* closest competitor (Mazotte, 2014). *La Nación*, a newspaper usually associated as left wing, used to be state-owned and it is currently published online only by the private company *Comunicaciones Lanet S.A.* (journalist from *La Nación*; personal communication, April 10, 2017).

On February 27, 2010, a massive 8.8-magnitude earthquake struck the center and southern regions of Chile. Chilean President Michelle Bachelet failed to set a tsunami alert right after the earthquake, and when a tsunami did hit the coast, hundreds of people drowned (Mendoza et al., 2010). Four years later, during Bachelet's second presidency, an 8.2-magnitude earthquake struck the coast of northern Chile on April 1, 2014. During this second earthquake, President Bachelet set a precautionary tsunami alert for the entire Chilean coast and evacuated 900 thousand people in the north. In her first official press release, Bachelet said "the tsunami alert was set promptly" and emphasized the government's work to protect people's lives and belongings (*Prensa Presidencia*, 2014). Citizens had a *déjà vu* moment, recalling the authorities' call to remain calm in 2010. "I would do exactly the opposite of what she (President Bachelet) says," a news reader posted in the comments section of EMOL on April 2, 2014.

How did the Chilean public opinion evaluate and frame the government's response to the 2014 disaster? What factors influenced such evaluations and frames? This chapter aims to answer these inquiries.

³⁴ EMOL is the acronym for *El Mercurio On Line*.

OVERVIEW

Out of the 483 earthquake-related stories published by national newspapers EMOL, *La Tercera*, and *La Nación*, 308 news stories (64%) had at least one comment posted to the newspaper's website. Considering only the stories commented on by news readers, each story received 13.5 comments on average ($SD=34.8$). Half of the stories received four comments or fewer, while six stories received more than 100 comments each. The maximum number of comments posted to an individual story was 395³⁵.

Figures 6.1 to 6.3 illustrate the distribution of comments posted to each newspaper from April 1 to April 30, 2014. Figure 6.4 compares the distribution of the comments posted to the three newspapers in April 2014. In order to see if the distribution of comments relates to the distribution of news stories, figures 6.5 to 6.7 compare the distributions of news stories and comments in EMOL, *La Tercera*, and *La Nación* in April 2014. Since the number of news comments was significantly larger than the number of news stories in some papers (particularly in EMOL), the comparison was made considering percentages instead of absolute numbers. Then, figures 6.5 to 6.7 illustrate the percentage of stories/comments published/posted each day of April 2014.

³⁵ Posted to a story published by *La Tercera* on April 1, 2014 immediately after the earthquake. This story was a minute-by-minute coverage of the tsunami waves generated after the earthquake and the precautionary evacuation of the entire Chilean coast.

Figure 6.1. Comments posted to news stories published by national newspaper EMOL (N=2,495).

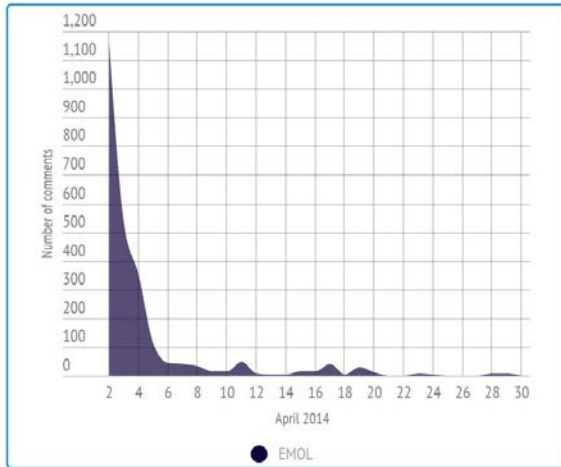


Figure 6.2. Comments posted to news stories published by national newspaper *La Tercera* (N=1,412).

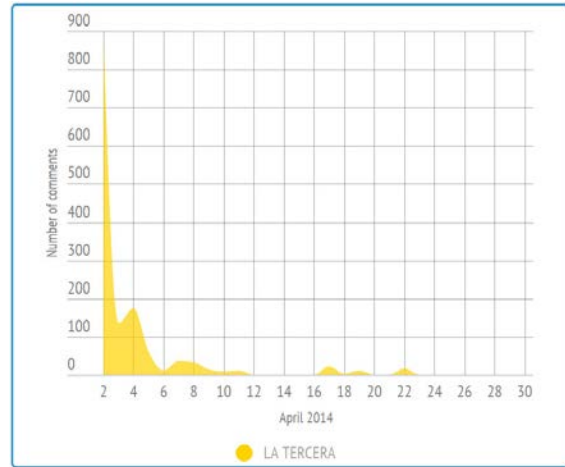


Figure 6.3. Comments posted to news stories published by national newspaper *La Nación* (N=261).

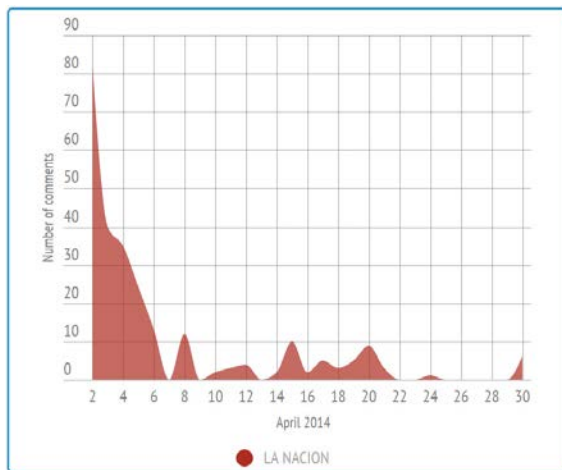


Figure 6.4. Comparison of comments posted to news stories published by the three national newspapers (N=4,168).

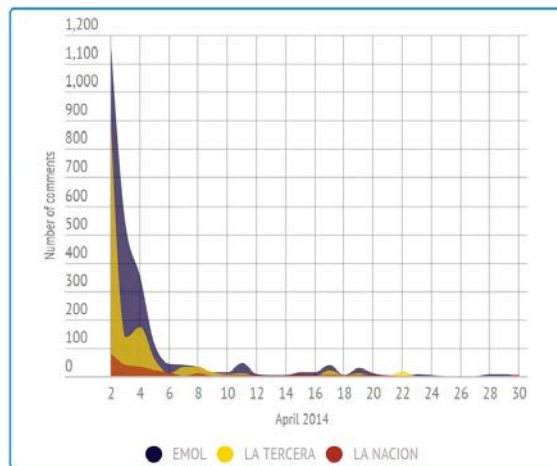


Figure 6.5. Distribution of news stories and comments in national newspaper EMOL (percentages).

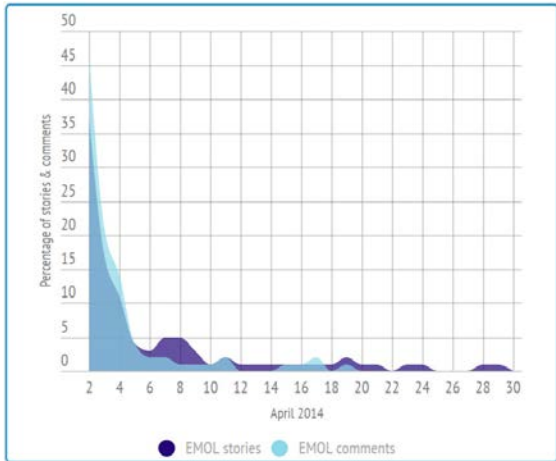


Figure 6.6. Distribution of news stories and comments in national newspaper *La Tercera* (percentages).

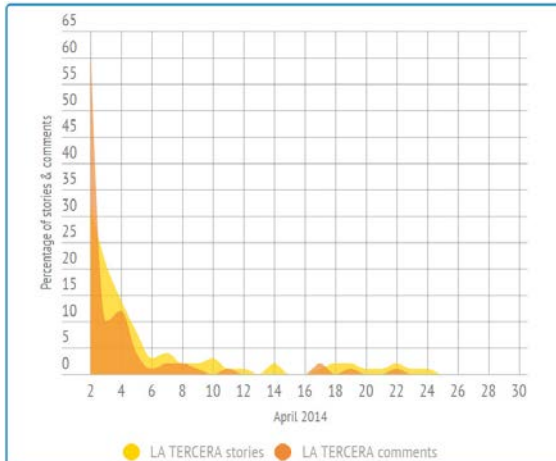
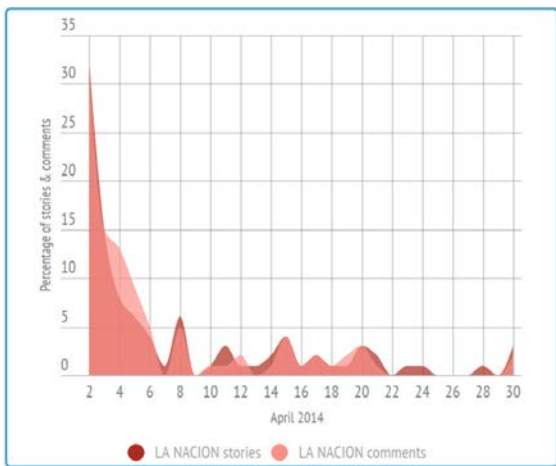


Figure 6.7. Distribution of news stories and comments in national newspaper *La Nación* (percentages).



Comparable to the distribution of earthquake-related stories described in Chapter 5, figures 6.1 to 6.3 show an extremely skewed distribution, where most of the comments were posted to stories published immediately after the earthquake (between April 1 and April 6). The shape of the distribution in each newspaper is similar, but the absolute number of comments posted to EMOL (N=2,495) and *La Tercera* (N=1,412) is overwhelmingly larger than the number of comments posted to *La Nación* (N=261). Figure 6.4 illustrates the differences between the three newspapers regarding comments posted to the earthquake-related stories.

Table 6.1 illustrates the distribution of comments by week. With EMOL and *La Tercera*, more than 90% of the comments were posted to stories published during the first week of the news coverage (from April 1 to April 8). Proportionally, *La Nación* had more comments posted on Week 2 (from April 9 to April 15) and Week 3 (from April 16 to April 22) as compared to EMOL and *La Tercera*, but this distribution is still much skewed toward Week 1 (see Table 6.1). Just 1% of the comments in EMOL and 3% in *La Nación* were posted in Week 4 (from April 23 to April 30), and no comments were posted to *La Tercera* in this same period.

Table 6.1. Distribution of comments each week, by news outlet (N=4,168).

Source	Week 1	Week 2	Week 3	Week 4	Total	N
EMOL	91%	4%	4%	1%	100%	2,495
<i>La Tercera</i>	94%	2%	4%	0%	100%	1,412
<i>La Nación</i>	79%	8%	10%	3%	100%	261
Total	91%	4%	4%	1%	100%	4,168

A closer look at figures 6.1, 6.2, and 6.3 reveals the distribution of comments in the three newspapers contained different peaks and valleys. Although the vast majority of comments concentrated in Week 1, EMOL (Figure 6.1) had small peaks on April 11, April 17, and April 19, while *La Tercera* (Figure 6.2) had peaks on April 4, April 7, and a very small peak on April 17. *La Nación* (Figure 6.3) had several peaks over the month, but when the three distributions are compared (Figure 6.4), the peaks in *La Nación* seem irrelevant.

The qualitative textual analysis of the comments revealed the peak in EMOL on April 11 was due to news readers' conversation about the Dakar Rally. Organized by the Amaury Sport Organisation, the Dakar Rally is an off-road annual endurance event held in South America since 2009³⁶. After the 2014 earthquake, Chilean authorities discussed whether it was feasible to host the Dakar Rally in the Atacama Desert (located in northern Chile) considering the government should focus on the reconstruction of the region. Also, South American environmentalists questioned whether race officials were ignoring the environmental damage of the rally, as a thousand vehicles raced across the landscape (McGowan, 2012). EMOL published a story describing this matter, and the comments largely discussed the pros and cons of hosting the rally. Many readers indicated the race was a good thing for the country, as it would lead to economic profits, stimulate tourism, create temporary jobs, and promote the Chilean landscape internationally. Others indicated the event would not produce much profit and would damage the soil and kill animals when racers invade their habitats. The political angle of the discussion portrayed President Bachelet as unable to “chew gum and walk at the same time,” a metaphor used to describe a person who cannot multitask. Readers criticized

³⁶ It was held in Europe and Africa since its inception in 1978 until 2007 (www.dakar.com).

Bachelet for not being able to work on the organization of the Dakar Rally while also working on the reconstruction of northern Chile. Together, all the stories about the Dakar rally received 35 comments.

The peak in the EMOL comments on April 17 happened during the government's designation of three presidential delegates charged with the reconstruction plan in both northern Chile and Valparaíso³⁷. On April 12, 2014, just eleven days after the earthquake in the north, a huge fire took place in the city of Valparaíso, located in the central coast of Chile. It lasted three days, and it is considered to be the worst urban fire in Chilean history (Correa et al., 2016). Thus, President Bachelet had to face two disasters in two different regions of the country, and that is why she designated three delegates to work on the reconstruction process in both Iquique³⁸ and Valparaíso. The EMOL story about the delegates triggered mostly negative comments. Readers criticized the President for spending time and resources in appointing delegates instead of empowering local authorities in both regions (Iquique and Valparaíso). "The queen of bureaucracy," some called her. Many users mentioned former President Sebastián Piñera and how he faced the reconstruction after the 2010 earthquake in Concepción³⁹. The Bachelet-Piñera comparison generated aggressive, uncivil comments; however, the biggest levels of incivility appeared when the conversation mentioned Augusto Pinochet, who ruled the country between 1973 and 1990 under a military dictatorship. Those who supported Bachelet's measures to deal with both disasters engaged in nasty discussions with her detractors, calling them "*fachos*" (somebody who supports fascism, extreme right wing) or "*Pinochetistas*" (Pinochet's supporters). In response, these readers called Bachelet's

³⁷ Valparaíso is the third largest metropolitan area in the country after Santiago (the capital city) and Concepción (in southern Chile), and is one of the South Pacific's most important seaports.

³⁸ Iquique is the capital city of the Tarapacá Region in northern Chile.

³⁹ Concepción is a city southwest of Santiago and the second largest city of Chile.

supporters “communists” or “Marxists,” and mentioned Bachelet’s inability to deal with the immediate consequences of the 27/F⁴⁰ earthquake back in 2010. The story about the presidential delegates received 40 comments, and 35 of them contained a negative tone. This is consistent with findings indicating that a high-profile source with an identifiable partisan leaning generates the most incivility in news comments (for example, President Obama in the U.S., or Pinochet in the Chilean case) (Coe et al. 2014).

EMOL reporters do not get involved in online news discussions. According to a journalist from EMOL, they cannot engage with news readers, but the paper does moderate comments to avoid higher levels of incivility:

“Interacting with online readers is forbidden for reporters. Years ago we used to get involved in the conversation, and the threads were huge and unending; we don’t do it anymore. We do have moderators to delete offensive comments though” (journalist from EMOL; personal communication, April 3, 2017; my translation).

The third peak in EMOL comments occurred on April 19 when the government announced an allowance would be paid to families who lost their homes during the earthquake. The money would help these families to rent housing; however, it was supposed to be a one-time subsidy, not a permanent solution. Comments to this story were highly critical of the government. Readers did not agree with Bachelet’s “populist measures” to “keep people happy with money from the tax payers.” Some comments provided elaborate arguments, indicating that given the same supply and the sudden demand, the prices of renting places would quickly escalate, especially if the government subsidized rents. Other readers approved the allowance, but were cautious about giving money to people to solve their problems: “people will get used to it – later they won’t do

⁴⁰ February 27, 2010, date of the earthquake in Concepción.

anything but wait for the President to provide.” Many readers did not elaborate on their arguments, but just expressed their disagreement in short sentences, such as “how did you people vote for her again?;” “very creative solution – socialist style;” “if you speak when it’s not your turn, allowance / if you look through the window, allowance / if you look at my sandals, allowance / if you get less than nine, allowance;” “what a useless administration.” The story about the allowance received 26 comments, and 20 of them contained a negative tone.

As illustrated in Figure 6.2, *La Tercera* had comment peaks on April 4, 7, and 17. The peak on April 4 was due to a story about earthquake-proof buildings in Chile. This piece was crafted in Spanish by the BBC, including interviews with Chilean professors, architects, and engineers. Akin to a meta-story, *La Tercera* wrote an article about this report appealing to the national pride – Chile is known as the most seismic country in the world and yet, its buildings do not collapse. The comments posted to this meta-story discussed the current construction techniques and regulations, how to improve building designs, and how to prepare the country to be ready for even stronger quakes. Many commenters were engineers or architects providing informed, well-educated opinions about buildings constructed in the last 30 years. Other commenters congratulated these professionals and expressed their pride: “I’m so proud of our engineers and architects. Congratulations!” “Big pride that Chile is internationally known for its high-quality constructions. In 2010, just one building collapsed in Concepción and it was during a 3-minute earthquake. A 3-minute earthquake! That could have devastated the whole city, but it was just one building. Good job Chile!” This story triggered one of the most civil discussions (maybe the most civil one) in the analysis, to the extent some users appreciated and openly thanked commenters for the level of the conversation: “So glad I found people commenting a story in a civilized way... if all comments were like these,

we would grow higher as a society.” The BBC story received 56 comments, and none of them contained a negative tone.

The comment peak on April 7 is related to several mayors in northern towns complaining about the government’s help. According to the mayors of Iquique, Alto Hospicio, and Huara, official help was taking too long to arrive from Santiago⁴¹ to northern Chile. The comments again focused on Bachelet’s team’s inability to deal with natural disasters and the government’s lack of efficiency. To counter, President Bachelet’s supporters mentioned her campaign promises: tax reform, free higher education, a new constitution, and support of same-sex marriage. These comments focused on the good things that would happen during Bachelet’s leadership, emphasizing the earthquake was no one’s fault. The story about the mayors received 27 comments, and 10 of them said negative things about President Bachelet and her team.

La Tercera’s comment peak on April 17 coincides with the EMOL’s peak on the same date. The presidential delegates appointed for the reconstruction in Iquique and Valparaíso generated several uncivil comments against Bachelet. Readers blamed her for spending money and resources in designating delegates instead of working with her already established team. “Why more bureaucracy? This woman keeps helping her political friends;” “then why do we have governors and local authorities in each region? Terrible decisions again – she has not learned any lesson;” “she should watch videos of Sebastián Piñera fixing problems. Do your homework!” Yet, the very last comment of this thread encouraged commenters to stop discussing and start helping. “My friend, the destruction in Valparaíso is so big, that I feel embarrassed of reading your comments. Really. Please get your fingertips off your keyboard and come help us. The devastation is

⁴¹ Santiago is the capital city of Chile.

absolute.” This story received 22 comments, and 16 of them reported negative things about President Bachelet and her team.

According to reporters from *La Tercera*, incivility in comments is common, especially when associated with political news stories. *La Tercera* does not have a policy against reporter/commenter interactions, and yet, reporters prefer not to engage in online discussions with news readers. Some of them even avoid reading comments at all.

“I have an aversion to reading comments, especially those posted to my own stories. The level of violence is terrible. For the sake of my mental health, I never read them. Too much sexism, misogyny and xenophobia... the worst of Chile and the Chileans emerges in these comments” (journalist from *La Tercera*; personal communication, March 28, 2017; my translation).

“I do read news comments, a lot. I read comments from both EMOL and *La Tercera* – they are bitter. It is hard to work for a right-wing outlet, where a lot of polarization emerges from political stories” (journalist from *La Tercera*; personal communication, March 31, 2017; my translation).

Figures 6.5, 6.6, and 6.7 suggest the distribution of comments followed the distribution of news stories. In other words, the online discussion followed the same pattern as the media coverage of the earthquake – much attention was given to the earthquake and tsunami in the immediate aftermath of the disaster, but after the first week, fewer stories were published by the media, and consequently fewer comments were posted. Pearson’s correlation analyses between the number of stories and comments posted in April 2014 indicated the correlation between media coverage and online public discussion is significant for the three national newspapers analyzed in this study. For EMOL ($r=.991$, $p<.001$) and *La Nación* ($r=.978$, $p<.001$) the correlations were almost perfect, while *La Tercera* ($r=.892$, $p<.001$) also presented a very strong correlation.

These findings are in line with previous research showing people are more likely to discuss issues that are salient in the media agenda (McCombs & Shaw, 1972).

DOMINANT THEMES IN THE ONLINE NEWS COMMENTS

Research question 1c (RQ1c) explores the dominant themes in online news comments posted to earthquake-related news stories published by EMOL, *La Tercera*, and *La Nación* during April 2014. To answer RQ1c, all comments posted to the news stories covering the 2014 earthquake and tsunami in northern Chile were content analyzed using Structural Topic Modeling (Roberts et al., 2014a). As explained in chapters 4 and 5, it is the researcher's task to specify how many topics the model will produce based on interpretability and analytic utility (Blei & Lafferty, 2009). For this study, a 10-topic solution emerged as the best-fitting model for the online news comments. The 10-topic model was the most parsimonious solution among the several models run with different numbers of topics.

Figure 6.8 illustrates the 10-topic model starting from the most to least prominent topic. Figure 6.9 shows the most important words in each topic based on topic-word proportions, i.e. the probability of observing each word in the vocabulary under a given topic. Both high-probability words (most frequent words under a given topic) and exclusive words (top words unlikely to appear in other topics) are illustrated in Figure 6.9 (Roberts et al., 2014a). The paragraphs below describe model topics and top words in detail.

Figure 6.8. 10-topic model of the 2014 Chile earthquake and tsunami's online news comments (N=4,168).

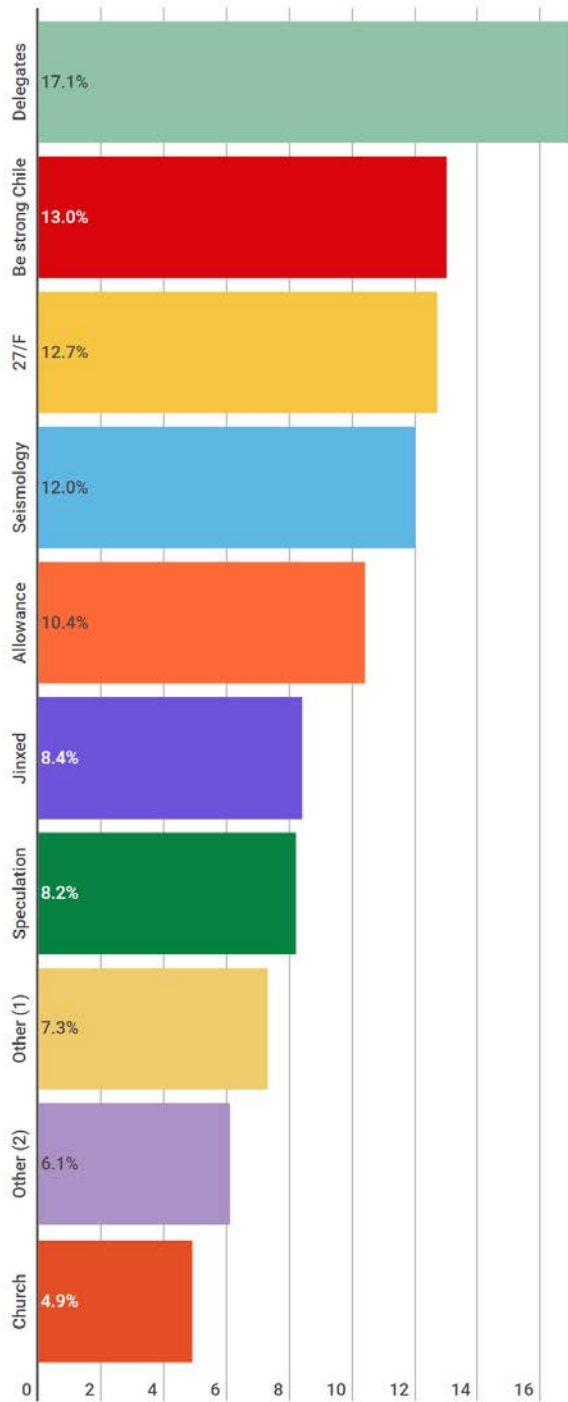


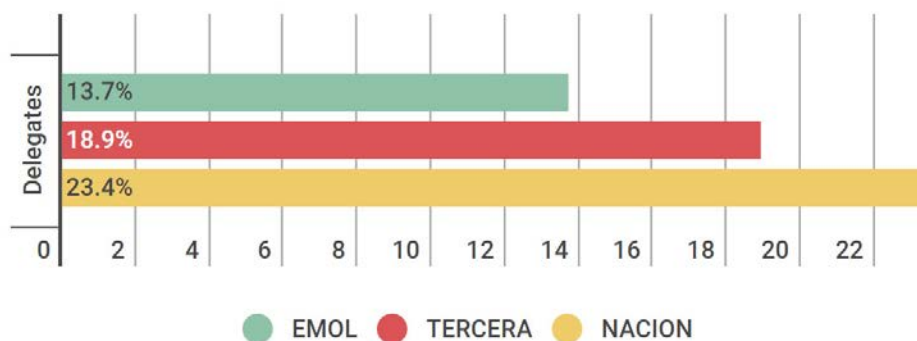
Figure 6.9. High-probability and exclusive words per topic (N=4,168).



Delegates

“Delegates” is the most prominent topic in the corpus, as illustrated by Figure 6.8. According to the proportion in which each topic distributes in the comments, 17% of the corpora discussed the “Delegates” topic. As described in the overview, news readers did not like President Bachelet’s decision of appointing presidential delegates for the reconstruction in both Iquique and Valparaíso, and the comments reflect their disapproval: “Then what are local authorities for? Terrible solution Madam Bachelet – again making stupid decisions. This lady hasn’t learned the lessons or she definitely doesn’t know how to face a crisis” (*La Tercera*, 2014, April 17; my translation). Comments highly associated with this topic come mostly from *La Nación*, despite the fact this outlet is usually linked to President Bachelet’s coalition (see Figure 6.10). Yet, a one-way analysis of variance (ANOVA)⁴² revealed no significant differences among the three national newspapers regarding the distribution of this topic. Top words in this topic include terms such as “delegate,” “work,” “construction,” “million,” and “housing.”

Figure 6.10. Proportion of the corpus using the “Delegates” topic by source.

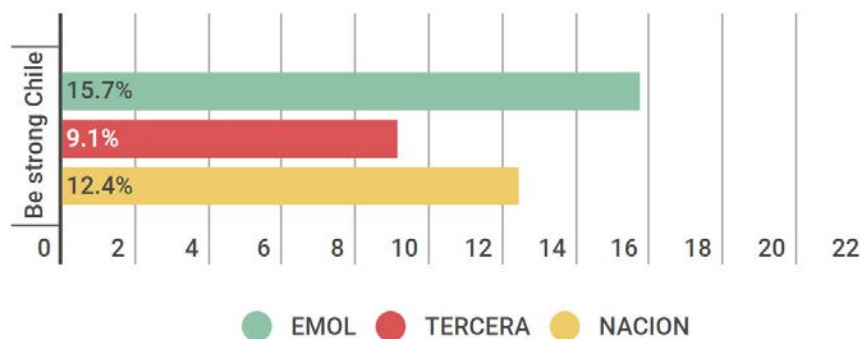


⁴² For ANOVA and Post Hoc test values, see Appendix D.

Be strong Chile

This is the second most relevant topic at 13%, and it summarizes the first impressions of news readers immediately after the earthquake. Readers in Chile and abroad sent heartfelt wishes of support and prayers to the people in the north, encouraging them to be strong: “Good vibes and positive thinking for all Chileans, be safe! People from Brazil are thinking of you Chile, hugs!” (*La Tercera*, 2014, April 1; my translation); “Be strong people in the north! Hopefully Mother Earth stops shaking so that our brothers and sisters can get some rest and recover energies to face this tragedy. God bless you” (EMOL, 2014, April 3; my translation); “From Colombia I’m sending my best wishes to our beloved *Iquiqueños*⁴³, we are with you” (EMOL, 2014, April 4; my translation). Most of the comments using this topic come from EMOL (see Figure 6.11); however, a one-way ANOVA revealed no significant differences among the national newspapers included in this analysis. Top words in this topic include terms such as “Chilean,” “people,” “brother,” “protect,” and “hug.”

Figure 6.11. Proportion of the corpus using the “Be strong Chile” topic by source.

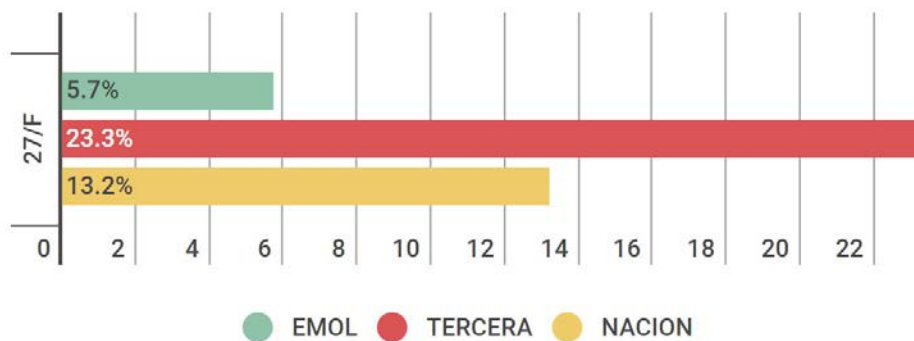


⁴³ People from Iquique.

27/F

At 12.7%, this is the third most relevant topic and discusses the government's performance when managing the crisis using the 27/F disaster as a benchmark. Some comments compared President Bachelet's decisions in 2014 with those taken during the 27/F earthquake and tsunami in 2010. Some others indicated the president overreacted based on the terrible decisions she made back in 2010, and some others reflected on how the government learned from previous mistakes: "What a huge difference with the 27/F where NOTHING WORKED!!! And 600 Chileans died. Now the Army was in control a couple of hours after the earthquake and the president relies on them to do everything" (*La Tercera*, 2014, April 3; my translation); "Apparently they did learn something from 27/F" (*La Tercera*, 2014, April 2; my translation); "I agree they [the government] did a terrible job during the 27/F, but I think the preventive evacuation was necessary this time. Sometimes nothing happens, but some others you may face several casualties for not taking preventive actions" (*La Tercera*, 2014, April 2; my translation). Comments using this topic were highly concentrated in *La Tercera* (see Figure 6.12), and the ANOVA analysis indicated the proportion of comments in *La Tercera* (usually linked to the political right-wing) was significantly higher than the proportion in EMOL (also right-wing) and *La Nación* (left-wing) ($F_{(2, 241)} = 13.239, p < .001$; see Bonferroni post hoc test in Appendix D). Terms such as "27/F," "Bachelet," "Piñera," "work," and "protocol" are the top words in this topic.

Figure 6.12. Proportion of the corpus using the “27/F” topic by source.



Seismology

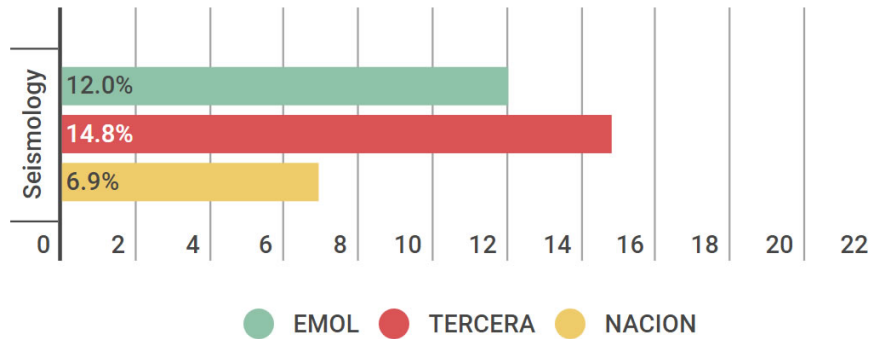
Seismology represents the fourth most relevant topic at 12% and includes words like “seism,” “magnitude,” “Richter,” “Valdivia⁴⁴,” “intensity,” “plate,” and “scale.” In this topic, comments come mostly from three news stories – two stories published by EMOL and *La Tercera* on April 2 about the chance of an even larger earthquake in the north, and a story by *La Tercera* on April 3 explaining why the buildings did not collapse considering the magnitude of the quake. News readers engaged in a civil, informative conversation about earthquakes in Chile and how well equipped the country was to face them. “Chile has demonstrated the country is prepared in terms of structure and organization, but we must keep working to improve the prevention and evacuation systems” (*La Tercera*, 2014, April 2; my translation), “I cannot imagine a 9.5-magnitude earthquake like the one in Valdivia⁴⁵. If this one [2014 earthquake] was three times smaller than the 27/F, and that one [27/F] was 30 times smaller than the one in Valdivia, how can we even imagine how that earthquake [Valdivia] was like?” (EMOL, 2014, April 2; my translation). This topic comes mostly from comments posted to *La Tercera*

⁴⁴ Valdivia is a city located in southern Chile.

⁴⁵ The Valdivia earthquake in 1960 is the most powerful earthquake ever recorded (9.5-magnitude).

(see Figure 6.13), but there were no significant differences among news outlets according to the one-way ANOVA.

Figure 6.13. Proportion of the corpus using the “Seismology” topic by source.



Allowance

At 10.4%, this is the fifth most relevant topic and it discusses the allowance provided by the government to those who lost their housing because of either the earthquake in the north or the fire in Valparaíso. Some readers disagreed with the idea of giving money instead of creating a long-term solution for those families, while other users argued short-term measures were needed at least as a first response. This interaction reflects what the topic is about:

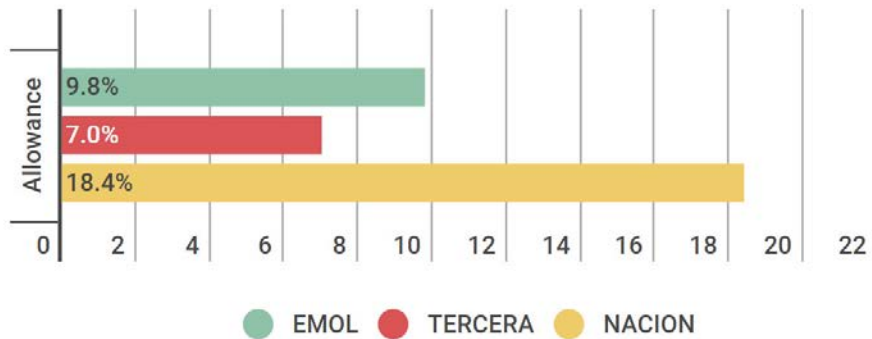
“Thank you, Chilean government, for making rents to increase. Knowing there are allowances for renting, landlords will increase renting prices.”

“So what’s your idea? Not to give them anything and abandon them until finding another solution for housing?”

(EMOL, 2014, April 19; my translation).

On average, fewer negative comments were seen in this topic as compared to 27/F. Comments using this topic come mostly from *La Nación* (see Figure 6.14), and the one-way ANOVA indicated significant differences between *La Nación* and *La Tercera* ($F(2, 241) = 3.778, p < .05$; see Bonferroni post hoc test in Appendix D). Top words in this topic include terms such as “subsidy,” “allowance,” “earthquake,” “fire,” “people,” and “Chilean.”

Figure 6.14. Proportion of the corpus using the “Allowance” topic by source.

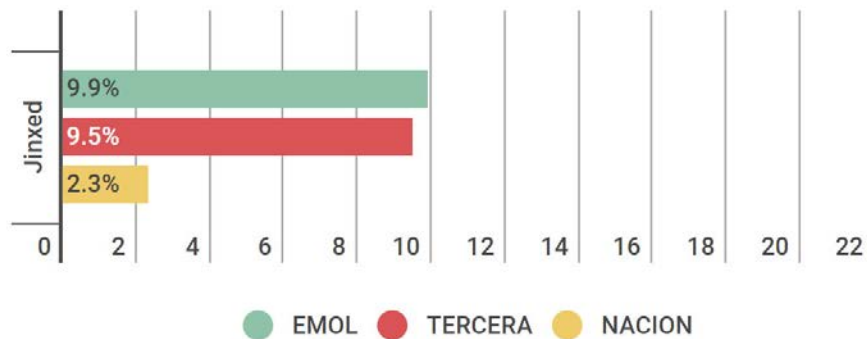


Jinxed

At 8.4%, the idea of President Bachelet as a source of bad luck is the sixth most prominent topic in the corpus. This is also the topic with the most uncivil comments and interactions among news readers. Top words in this topic include terms such as “jinxed,” “Bachelet,” “Piñera,” “woman,” “fat,” and “plump.” For example: “This fat old communist woman is jinxed – she left with an earthquake and came back with another one... unbelievable! Probably a unique case in the world! This old woman is just bad luck! Piñera must be laughing out loud!” (EMOL, 2014, April 1; my translation). Around 10% of the comments posted to right-wing outlets *La Tercera* and EMOL include this topic, while a small proportion of comments posted to *La Nación* (2.3%) discussed the

“Jinxed” idea (see Figure 6.15). According to the one-way ANOVA, differences of topic proportions among newspapers were significant ($F_{(2, 241)} = 3.129, p < .05$, see Bonferroni post hoc test in Appendix D).

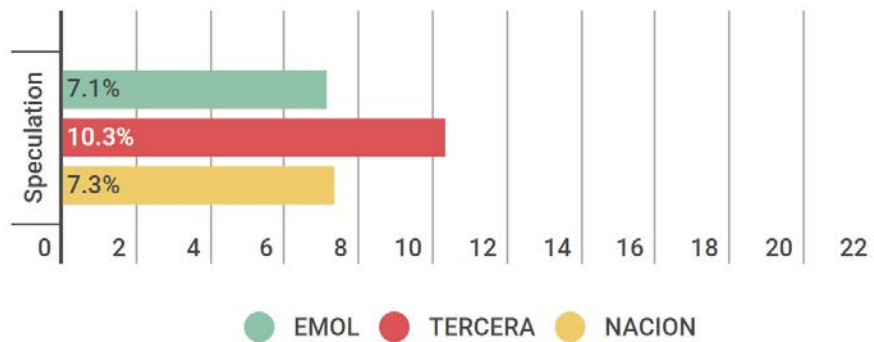
Figure 6.15. Proportion of the corpus using the “Jinxed” topic by source.



Speculation

This is the seventh most relevant topic at 8.2% and includes terms such as “price,” “commerce,” “speculator,” “market,” and “abuse.” Comments associated with this topic discussed price increases in the areas affected by the earthquake as some stores started charging disproportionate amounts of money for food and supplies. News readers were upset at a situation they considered abusive: “Hopefully when everything gets back to normal, people will punish the speculators by not buying anything from them, for at least a month, or forever” (EMOL, 2014, April 4; my translation); “So sad tragedies bring up the worst in human kind – abuse, usury, cornering” (EMOL, 2014, April 4; my translation). Comments using this topic come mainly from *La Tercera* (see Figure 6.16), but the one-way ANOVA found no significant differences among newspapers.

Figure 6.16. Proportion of the corpus using the “Speculation” topic by source.



Other (1) and (2)

These two topics, at 7.3% and 6.1% respectively, do not indicate any meaningful pattern. The qualitative textual analysis revealed that conversations associated with this topic were very heterogeneous as most of the comments were posted to stories published immediately after the earthquake. Then, comments discussed a broad range of issues. Also, top words in these topics include several names (such as Maria, Gonzalo, or Carlos) suggesting the modeling process picked up certain interactions among news readers where they mentioned each other when replying to comments. Most of the comments in both “Other (1)” and “Other (2)” come from EMOL (see Figures 6.17 and 6.18). As no specific patterns were found, these two topics were not considered in further analyses.

Figure 6.17. Proportion of the corpus using the “Other (1)” topic by source.

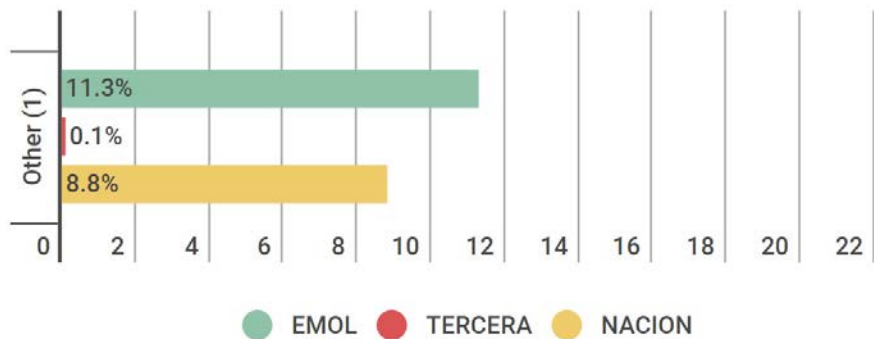
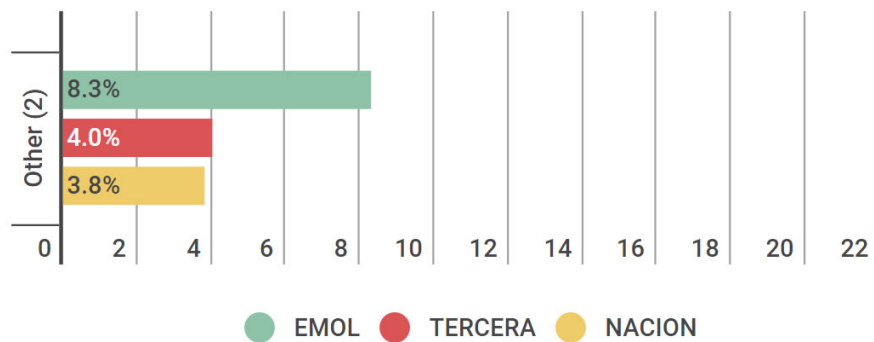


Figure 6.18. Proportion of the corpus using the “Other (2)” topic by source.



Church

At 4.9%, this is the last topic in the model. Comments associated with this topic come mostly from EMOL (see Figure 6.19) and were posted to stories about the reconstruction of patrimonial churches affected by the earthquake, as well as a couple of stories about Pope Francis (Francisco) sending his blessing to the Chilean people. Top words in this topic include terms such as “Francisco,” “church,” “poor,” “human,” “person,” and “people.” The qualitative textual analysis revealed discrepancies among news readers regarding allocating money to repair churches, such as the following:

“The priests could sell some of their properties then. Why don’t we focus on real people’s tragedies – like those who lost their houses?”

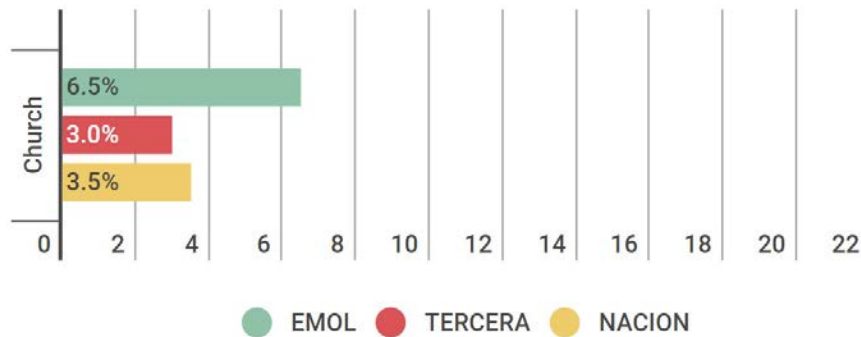
“I’m so sorry to realize fixing churches is more important than helping those who don’t even have water to survive. God lives inside us and not inside temples.”

“True, but for rural communities in the north churches are very important. The relevance of these buildings for people living there and visiting church is greater than you can imagine. Your comments are so superficial.”

(EMOL, 2014, April 5; my translation).

The one-way ANOVA found no significant differences among newspapers regarding the distribution of this topic in the corpus.

Figure 6.19. Proportion of the corpus using the “Church” topic by source.



PUBLIC OPINION AND MEDIA INFLUENCE

To understand the media-public opinion relationship, this dissertation proposes two competing hypotheses. When disasters occur, people turn to the news media to gain information about these events (Houston et al., 2012). Citizens’ perceptions are shaped by how the media describe and characterize a catastrophic situation (Sellnow & Seeger, 2013), while shifts in public opinion may be indicative of or influenced by the way the media frame these situations (Iannarino et al., 2014). Consequently, Hypothesis 6 (H6) suggests that topics emphasized by the media when covering the 2014 earthquake will be positively correlated with the topics discussed by the public opinion. In other words, the online conversation about the 2014 earthquake and tsunami in northern Chile—embodied by news readers’ comments—will echo the topics emphasized by the media.

In contrast, literature on counterpublic theory argues that comments on websites are a space to react against hegemonic mainstream public spheres. (Toepfl & Piwoni,

2015). In their study about a new anti-Euro party in Germany, Toepfl and Piwoni (2015) found that news comments challenged the mainstream media discourse about the new party, introducing contesting concepts in the online conversation. Similarly, research on disaster coverage has found that people are more likely to discuss issues beyond the realm of the actual disaster, because these events trigger ongoing political tensions, debates and projects, what Cottle (2006) calls “mediatized conflicts.” These studies suggest that online news comments provide an opportunity for challenging frames to emerge as opposed to the frames introduced by the media or political elites. Thus, Hypothesis 7 (H7) poses that a) the topics discussed in the online conversation were different from the topics emphasized by the media, and b) the topics discussed in the online conversation went beyond the realm of the 2014 earthquake and tsunami.

To test H6, H7a, and H7b, zero-order Pearson’s correlations were calculated to ascertain the ways in which topics found in the media coverage (see Chapter 5, figures 5.7 and 5.8) relate to topics found in online news comments. When conducting STM, the unit of analysis is the document (news stories/press releases). Media and government topics were estimated using the content of each document. Public opinion topics were estimated using the content of the comment thread posted to each document – in this case, comments posted to news stories from national media⁴⁶. STM estimates mixed-membership models (i.e. models where documents might use more than one topic) and calculates the proportion each document uses each topic in the model. Then, the proportion of each media topic was correlated with the proportion of each public opinion topic in each case. Table 6.2 illustrates the results of the correlations.

⁴⁶ Neither *El Longino* nor the Chilean government’s websites allow news readers to post comments.

Table 6.2. Zero-order Pearson's correlations between media and public opinion topics (N=483).

Media Topics	Public Opinion Topics							
	<i>Delegates</i>	<i>Be Strong Chile</i>	<i>27/F</i>	<i>Seismology</i>	<i>Allowance</i>	<i>Jinxed</i>	<i>Speculation</i>	<i>Church</i>
<i>Authorities</i>	-.03	-.03	.38***	-.05	.087	.14**	-.07	-.04
<i>Seismology</i>	-.10*	.07	-.08	.27***	-.051	.03	-.07	-.04
<i>Tsunami</i>	-.16***	.35***	0	0	-.086	.12**	-.08	.14**
<i>Valparaíso</i>	.31***	-.06	.06	-.03	-.023	-.01	-.05	-.05
<i>Flights</i>	-.12**	-.01	-.09	-.06	-.077	-.02	-.06	-.02
<i>Help</i>	.03	-.06	-.07	-.08	.20***	-.06	.02	-.01
<i>Housing</i>	.31***	-.06	-.05	-.05	.02	-.03	.09*	-.01
<i>Schools</i>	.01	-.07	-.07	-.01	.03	-.01	-.05	-.04
<i>Reconstruction</i>	.15**	-.06	-.05	-.06	.07	-.04	-.04	-.02
<i>Medical Assistance</i>	-.01	-.03	-.01	-.02	-.02	-.03	-.04	-.01
<i>Jailbreak</i>	-.09*	-.06	.04	-.07	-.04	.10*	.10*	-.02
<i>Water</i>	.12*	-.02	-.06	-.06	.09*	-.02	.07	-.04
<i>Human Interest</i>	-.05	-.02	-.06	-.04	.09*	-.09	0	.07
<i>Bachelet</i>	.05	-.02	.17**	-.04	-.05	.05	.08	-.02
<i>Fishermen</i>	-.02	-.02	-.01	-.07	-.02	-.05	-.02	-.03
<i>Explanations</i>	-.07	-.03	.07	.291***	-.02	-.06	-.04	.08
<i>Local Commerce</i>	-.04	-.06	-.06	-.039	-.01	-.06	.34***	-.04
<i>Jobs</i>	.02	-.06	-.03	-.034	-.01	-.05	-.04	-.04
<i>Highways</i>	.05	-.03	-.04	-.045	.04	-.04	.05	-.01

Notes: Cell entries are two-tailed zero-order Pearson's correlations. N=483

* $p < .05$, ** $p < .01$, *** $p < .001$.

Results in Table 6.2 show most of the topics emphasized by the media were discussed to some extent by news readers.

Out of the 19 media topics included in the analysis, 13 were positively correlated with the public opinion topics at least to some degree: Authorities, Seismology, Tsunami,

Valparaíso, Help, Housing, Reconstruction, Jailbreak, Water, Human Interest, Bachelet, Explanations, and Local Commerce⁴⁷. In contrast, the Flights topic was negatively correlated with the public opinion, indicating the more the media emphasized this issue, the less people discussed it. The topics of Schools, Medical Assistance, Fishermen, Jobs, and Highways were not correlated with any of the public opinion topics. However, it is important to notice that Schools and Medical Assistance were topics emphasized mostly by the local newspaper *El Longino*, while Jobs and Highways were topics coming mostly from government press releases (see Table 5.3 in Chapter 5). As such, those four topics come mostly from local media and government information, and this dissertation does not include data to measure the public's reaction to government press releases and *El Longino* stories (neither of these sources allow readers' comments). This does not mean that local media and government topics had no effect on the public discussion – some topics emphasized mostly by these two sources did have a positive correlation with public opinion topics (such as Authorities and Valparaíso) even though public opinion topics come from comments posted to national outlets only. That indicates the public did discuss themes that were not significantly emphasized by the national media.

A closer look at the correlations allows us to see specific relationships among topics, as well as the strength of the relationships. While most of the correlations were weak ($r < .30$) five correlations were moderate relationships ($.30 < r < .70$): Valparaíso/Delegates; Housing/Delegates; Tsunami/Be Strong Chile; Authorities/27F, and Local Commerce/Speculation (see Table 6.2).

The Delegates topic—the most prominent public opinion topic—was positively correlated with the media topics Valparaíso ($r = .305$, $p < .001$), Housing ($r = .307$, $p < .001$),

⁴⁷ See Chapter 5 for a detailed explanation of media topics.

Reconstruction ($r=.148$, $p<.01$), and Water ($r=.115$, $p<.05$). This means that when the media wrote about reconstruction efforts in northern Chile and Valparaíso, or the need for housing and water in the areas affected by either the earthquake or the fire, people mentioned the appointment of presidential delegates to oversee the reconstruction. As described in the previous section, comments associated with this topic disapproved of appointing delegates arguing local authorities should be empowered to manage the reconstruction instead of appointing new authorities. Therefore, the news readers' response to the media topics Valparaíso, Housing, Reconstruction and Water was a negative one, where readers negatively evaluated President Bachelet's actions and criticized the government's bureaucracy. According to a reporter from *La Nación*, this type of response was common during the online conversation about the disaster:

“There was strong criticism against the government and authorities in general. Social media has largely been used to criticize specific issues, and the 2014 earthquake was an opportunity for news readers to be harsh with the authorities, the president, and the politicians in general” (journalist from *La Nación*; personal communication, April 10, 2017; my translation).

The public opinion topics Be strong Chile and Church were both positively correlated with the media topic Tsunami ($r=.346$, $p<.001$, and $r=.141$, $p<.01$, respectively). When the media covered the tsunami alert and evacuation right after the earthquake, comments posted to those stories sent support and positive messages to people in the north encouraging them to be strong. Similarly, Pope Francis also sent his best wishes to the Chilean people, and that is why the Church public opinion topic (which contains comments about Pope Francis' message) was associated with the Tsunami media topic. Thus, the news readers' response to the media topic Tsunami was a caring, supportive one empathizing with those suffering in the north.

The 27/F topic—the third most prominent public opinion topic—was positively correlated with the media topics of Authorities ($r=.375$, $p<.001$), and Bachelet ($r=.170$, $p<.01$). As the 27/F public opinion topic comes from comments comparing the government’s performance during the 2010 and 2014 disasters, it makes perfect sense to have this topic associated with stories mentioning President Bachelet and authorities in her team. In news readers’ minds, President Bachelet and her team were linked to the 27/F disaster, and a new disaster (this time in the north) made that connection evident.

Following that logic, the Jinxed public opinion topic should be also correlated with the Bachelet media topic. Yet, it was not. Comments suggesting President Bachelet brought bad luck to the country were correlated with stories using the Authorities topic ($r=.137$, $p<.01$), the Tsunami topic ($r=.124$, $p<.01$), and the Jailbreak topic ($r=.104$, $p<.05$), but not the Bachelet topic. A possible explanation for these findings is the time period when the stories and news readers’ comments were published/posted. According to Table 6.1, 91% of the comments were published during the first week of earthquake news coverage. The qualitative textual analysis indicated that the “bad luck” comments were posted mostly to stories published immediately after the earthquake, such as those about the tsunami alert or the women’s prison break the night of the earthquake. Since that was the case, the probability of the Jinxed topic being related to media topics that did not emerge from stories published the night of the earthquake is low. Findings described in Chapter 5 indicated some topics were heavily covered in the aftermath of the disaster, while other topics unfolded in the subsequent coverage (see Table 5.4 in Chapter 5). The Bachelet topic was consistently covered through the month, as opposed to the Authorities, Tsunami, and Jailbreak topics that were emphasized significantly more in the immediate national media coverage.

The Seismology topic used in the comments was significantly correlated with the Seismology topic used in the media coverage ($r=.268$, $p<.001$), as well as the Explanations topic ($r=.291$, $p<.001$). The three topics discussed earthquake magnitudes and disasters' effects, meaning the public discussed the media topics Seismology and Explanations in a similar manner, echoing the media coverage of those issues.

The Allowance topic used in the comments was positively correlated with the media topics of Help ($r=.201$, $p<.001$), Water ($r=.090$, $p<.05$), and Human interest ($r=.090$, $p<.05$). The Allowance topics discussed the housing subsidies given by the government, and news readers mentioned this topic when posting comments to stories related to help needed in the areas affected by the earthquake, the lack of water availability in the north, and human interest stories about people who lost their houses and had to sleep on the streets.

Finally, the Speculation topic was positively correlated with the media topics of Local Commerce ($r=.343$, $p<.001$), Jailbreak ($r=.101$, $p<.05$), and Housing ($r=.091$, $p<.05$). News readers strongly disapproved price increases in northern Chile, and they made it evident when commenting stories about local prices and housing. The relationship with jailbreak is, however, less evident.

Media and public opinion topics by source

To achieve a more nuanced understanding of how media topics relate to public opinion topics, results from the zero-order Pearson's correlations were split by source. Figure 6.20 illustrates correlations in each newspaper – blue squares denote significant positive correlations between two topics (see Appendix E for specific r values).

According to Figure 6.20, media and public opinion topics were correlated differently for different newspapers. There was much more consonance between the

media and the public for the case of EMOL (with 22 significant positive correlations overall) than for the case of *La Tercera* (12 significant positive correlations) and *La Nación* (11 significant positive correlations).

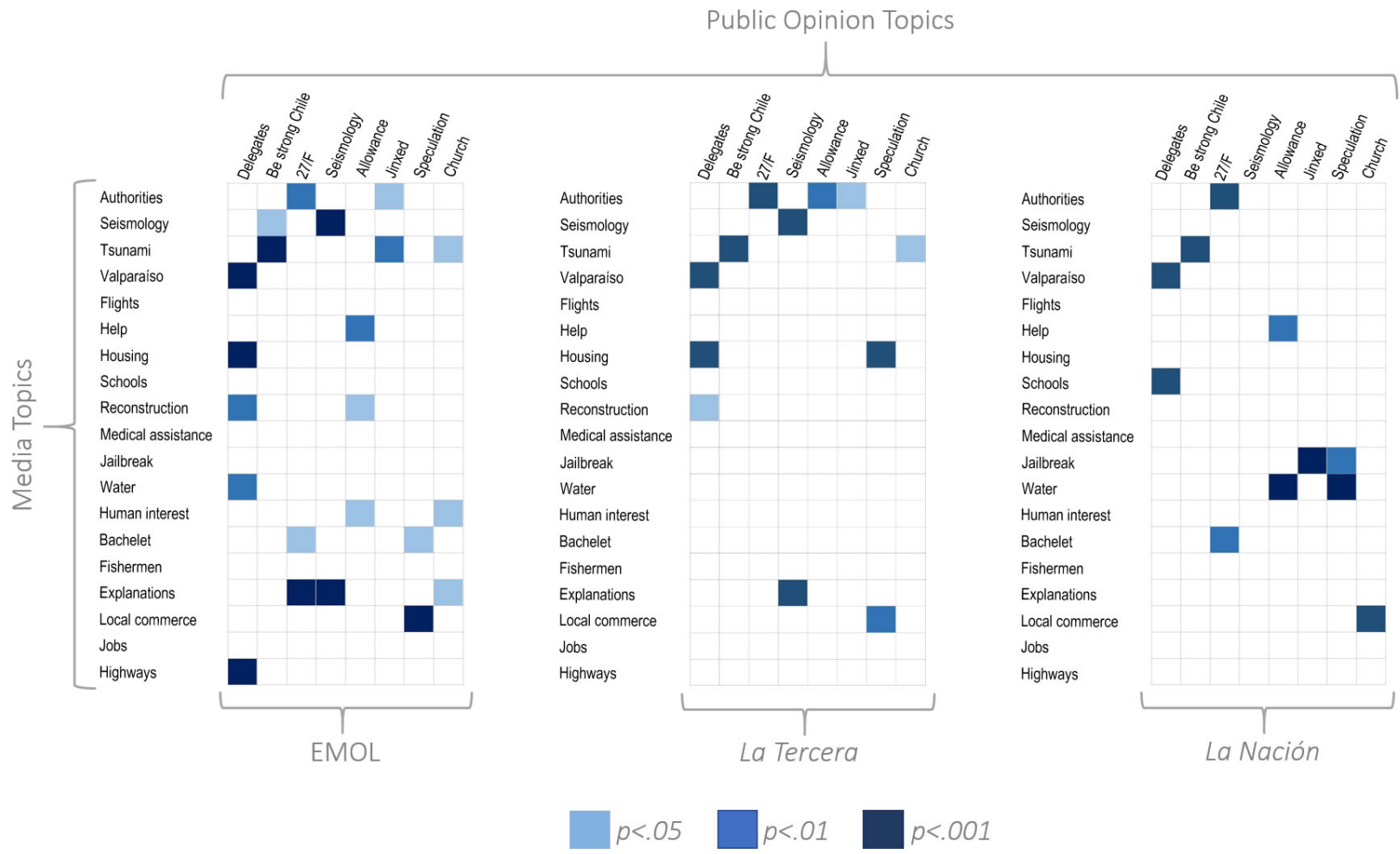
Out of the 19 media topics, only six topics from stories published by EMOL did not get a significant response from EMOL news readers: Flights, Schools, Medical assistance, Jailbreak, Fishermen, and Jobs. These are almost the same topics not significantly correlating with any public opinion topic when considering the three newspapers together. Tsunami and Explanations, in contrast, were correlated with three public opinion topics, meaning news readers provided three different responses to these media topics. Tsunami was correlated with public opinion topics Be strong Chile, Jinxed, and Church, while Explanations was correlated with public opinion topics 27/F, Seismology, and Church. If we look at how public opinion topics were used, we observe EMOL news readers used the Delegates topic as a response to five media topics (mostly those highly emphasized in the government press releases), while 27/F, Allowance and Church were used to discuss three media topics each. The other four public opinion topics (Be strong Chile, Seismology, Jinxed, and Speculation) were used to discuss two media topics each.

With *La Tercera*, 11 media topics received no significant response from *La Tercera* news readers. These findings suggest *La Tercera* news readers ignored most of the media topics and focused only on those directly related to the disaster (Seismology, Tsunami, Explanations), those related to political implications (Authorities, Valparaíso, Reconstruction), and a couple of topics related to disaster consequences (Housing and Local commerce). *La Tercera* news readers did not discuss Human interest or Bachelet, despite the importance these two media topics had among EMOL readers. The most used

public opinion topics were Delegates (used to discuss three media topics), Seismology and Speculation (used to discuss two media topics each).

Nine media topics in *La Nación* did not significantly correlate with any public opinion topic. As compared with EMOL and *La Tercera*, the main differences are observed in the media topics Seismology, Housing, Reconstruction and Explanations, which did not receive any response from *La Nación* news readers while being significantly discussed by EMOL and *La Tercera* news readers. *La Nación* readers paid more attention to the media topics Schools and Jailbreak, which were ignored by EMOL and *La Tercera* news readers. The most used public opinion topics were Delegates, 27/F, Allowance and Speculation, used to discuss two media topics each.

Figure 6.20. Significant positive zero-order Pearson's correlations between media and public opinion topics by source (N=483).



H6 predicted that media topics would be significantly correlated with public opinion topics, suggesting the public would echo the media when deciding the most salient themes to discuss. Despite the fact most of the media topics were positively correlated with at least one public opinion topic, this does not imply the public discussion of the earthquake echoed the media coverage of the disaster. First, findings from both Table 6.2 and Figure 6.20 show not all media topics were salient enough to be discussed by news readers. Second, the portrayal of issues in the online conversation did not always echo the media portrayal of issues and events. For instance, the Jinxed topic was correlated with three of the media topics, and yet, none of the topics found in the news coverage suggested President Bachelet could be a magnet for natural disasters. This means even though news readers use the information provided by the media to understand current issues, they are able to provide alternative explanations for such issues, and such explanations may vary depending on the news outlet. Consequently, **H6 was not supported.**

Public opinion counter-topics

Hypothesis 7 (a competing statement to H6) suggested public opinion topics a) would be different from media topics and b) would go beyond the realm of the 2014 disaster. Findings from Table 6.2 and Figure 6.20 indicate at least three out of the eight public opinion topics were different from media topics despite being positively correlated with topics in the news coverage. Church, Jinxed, and Be strong Chile were emotional responses to the disaster, targeting people's links to religion, superstition or empathy. Topics such as Delegates, Seismology, Allowance and Speculation were a direct response to media topics (such as Authorities, Valparaíso or Housing) and therefore, may be argued to have echoed the media coverage of the 2014 earthquake and subsequent

tsunami. Topics such as 27/F may or may not have followed the media coverage, as the memories of the 27/F were still vivid in people's minds. As such, not all public opinion topics were different from the media topics, but not all of them echoed the media, either. Consequently, **H7a was partially supported**.

Previous research found disasters trigger ongoing political tensions and debates. Thus, people are more likely to discuss issues not directly linked to the disaster itself (Cottle, 2006). STM did not find public opinion topics discussing issues other than the 2014 earthquake and tsunami. Yet, the qualitative textual analysis of the news readers' comments found three elements in the conversation that were not captured by STM – Santiago as the center of national attention, international relations, and Pinochet's military dictatorship.

Santiago as the center of national attention

Latin American countries are nations with dramatic urban centralization⁴⁸, and Chile is one of them. More than one-third of Chileans live within the metropolitan area of Santiago (Glaeser, 2003), and most of the political and economic groups are located in the capital city. Citizens living in regions other than Santiago have complained about the centralization and demanded for more attention and resources for the rest of the country (Rojo, 2012). This resentment was manifest in comments criticizing the news coverage from national media (located in Santiago):

“Interesting – when the earthquake epicenter is in Santiago, stories report about a STRONG EARTHQUAKE. But when the epicenter is located in the north, they call it MEDIUM INTENSITY EARTHQUAKE” (EMOL, April 11; my translation).

⁴⁸ Urban centralization: the settlement of a large percentage of a nation's population in metropolitan areas (Hoyt, 1941).

“If the 2010 earthquake hadn’t affected Santiago, nobody would have cared about reconstruction. What a crappy country we are! If things don’t happen in Santiago, no one cares” (EMOL, April 4; my translation).

Reporters agree events far from Santiago are less salient in the media agenda despite reporting for the entire country and not only for the capital city. A journalist from *La Nación* described how his organization felt about the disaster in Iquique:

“We did pay a lot of attention to the 2010 earthquake, but not that much to the 2014 disaster. The earthquake in 2010 hit Santiago too, so it felt really close. The 2014 disaster felt a little too far away from us” (journalist from *La Nación*; personal communication, April 10, 2017; my translation).

International relations

Historically, Chile has faced border issues with Peru and Bolivia, with some of them still in dispute. In 1883, Chile won the War of the Pacific against Peru and Bolivia taking a significant amount of land from both countries (Sicotte, Vizcarra, & Wandschneider, 2010). Since then, political tensions have been constant, and the animosity between Chile and Peru became evident in comments posted to stories about the tsunami warning for the Peruvian coast. Comments posted by Peruvian readers started heated discussions involving issues having nothing to do with the actual earthquake and tsunami:

“This demonstrates not even nature likes Chileans!!!! This is your karma for so much treason and robbery to neighbor countries!!!!” (Peruvian commenter).

“What’s your problem, you resentful Peruvian? We rightfully won the war and that land is ours. Do you want it? Come live in our country!”

“This happens when you steal what is not yours. Give it back or God will keep punishing you” (Peruvian commenter).

“I feel sorry for you, loser Peruvian.”

“Please stop involving politics in this terrible situation – it’s time to get together and help.”

(*La Tercera*, April 1; my translation).

The thread above is just a small sample of a long, heated conversation between Peruvian and Chilean commenters arguing about issues not at all related to the 2014 earthquake. Similar conversations were found in stories covering the effects of the earthquake in both Peru and Bolivia. However, not many stories were written about it – that is why this issue was not salient enough to become a topic in the STM model.

Pinochet’s military dictatorship

Another issue not captured by STM was people’s comments regarding Chilean dictator Augusto Pinochet. Pinochet ruled the country from 1973 to 1990 and died in 2006 (Reel & Smith, 2006). Whenever his name was mentioned in comments, incivility emerged between supporters and detractors. Some readers tried to shut these conversations down arguing the dictatorship happened several decades ago, and the country has moved on. The following thread was posted to a story about the presidential delegates appointed for the reconstruction of Iquique and Valparaíso:

“What’s the problem with having delegates? In 1973, Pinochet appointed delegates to go across the country and kill his enemies. At that time, the right-wing applauded those delegates.”

“Come on! This is the 21st century! It’s been more than 40 years [from Pinochet’s coup d’etat], and we live in a democracy now. Do not compare it with a dictatorship! Get informed before posting such a stupid comment.”

(EMOL, April 17; my translation).

Other comments just mentioned Pinochet as a way to criticize the center-left coalition ruling the country in 2014:

“Thank you, General Augusto Pinochet Ugarte. That’s the only thing I can say when I see this mediocre left wing in office again. I remember a Julio Iglesias song, “I stumbled again with the same stone.” This old woman, jinxed and *zurda*⁴⁹... God protects us – so many communists in power are dangerous for this country!”

(*La Tercera*, April 6; my translation).

This type of comment was not posted to specific stories, but scattered all through conversations, which made it difficult for STM to identify mentioning of Pinochet as a specific topic. Yet, the qualitative textual analysis unveiled this occurrence and the two themes noted above **providing evidence to support H7b** which expected people to discuss non-earthquake-related topics in the online conversation about the 2014 disaster.

PUBLIC OPINION AND PAST EVENTS

Journalists use contextual historical narratives to imply causality between past and present when covering disasters. Similarly, citizens also use information from past events to make sense of reality. For instance, Su (2012) found that letters from newspaper readers drew comparisons between the performances of the authorities during two disasters in Taiwan. In line with this literature, Hypothesis 8 (H8) suggested online news readers adopted the 2010 earthquake in southern Chile as a benchmark to make sense of the 2014 disaster, and readers from right-wing outlets did so significantly more.

⁴⁹ *Zurda* is Spanish for left and it is used to denote left-wing supporters.

The topics of 27/F and Jinxed found in RQ1c show news readers did remember the 2010 earthquake and tsunami in Concepción, and they did use it as a benchmark to make sense of the 2014 disaster in the north. Findings from Figure 6.20 show both 27/F and Jinxed were used in public opinion as a response to several media topics, especially Authorities, Tsunami and Bachelet. News readers made sense of the 2014 disaster by recalling the 27/F disaster in 2010 and by suggesting President Bachelet was a source of bad luck for the country. Although these topics were heavily discussed the night of the earthquake and did not relate to media topics emerging in the subsequent coverage, they did show people make use of past events to quickly process new information. In terms of ideology, readers from right-wing outlets did use the 27/F significantly more than readers from *La Nación* (left-wing), as shown in Figure 6.12. Consequently, **H8 was supported**.

FRAMING DISASTER: PUBLIC OPINION FRAMES

Research question 4 (RQ4) asked how a) the media, b) the government, and c) the public framed the 2014 disaster in northern Chile. RQ4a and 4b were answered in Chapter 5 using Entman's definition of frames and framing functions (1993). Media and government topics were examined to determine which of the four framing functions (defining problems, identifying causes, offering moral judgments, and suggesting solutions) were used by Chilean media and government to frame the disaster.

To identify how Chilean public opinion framed the disaster, news comments were analyzed in two steps. First, public opinion topics found when answering RQ1c were examined under Entman's definition of frames and framing functions (1993) to be able to compare public opinion frames with media and government frames found in Chapter 5. Second, news comments were qualitatively analyzed based on grounded theory and the constant comparative method (Glaser & Strauss, 1967; Tracy, 2013), to ascertain a more

holistic understanding of the online discussion about the 2014 earthquake and tsunami. The qualitative textual analysis followed an iterative process where comments were examined in several coding cycles to identify framing functions used by news readers when commenting earthquake-related stories.

Out of the eight public opinion topics estimated by STM, two topics—Seismology and Delegates—focused on *problem definition*, while two topics discussed *causal interpretation*—Jinxed and 27/F. The Seismology topic focused on the earthquake magnitude and scope identifying the problem as a strong earthquake with the potential to generate tsunami waves. The Delegates topic focused on the government's crisis-management skills, paying attention to President Bachelet's performance and ability to propose long-term solutions for disaster consequences. Two possible causes were suggested by public opinion topics: Michele Bachelet as a source of bad luck bringing natural disasters and all sort of catastrophes to the country (Jinxed), and the government's history of poor decisions evidenced during the 2010 earthquake and tsunami in Concepción (27/F).

Three public opinion topics focused on *moral evaluations*: Allowance, Speculation and Church. The Allowance topic evaluated how the government helped those facing housing issues. The Speculation topic condemned price increases of food and basic supplies in the northern part of the country, and the Church topic evaluated whether or not rebuilding churches was more important than rebuilding houses and schools. In sum, these topics evaluated effects of the disaster.

Finally, just one topic may be considered as providing *treatment recommendation*. In the immediate aftermath of the event, news readers sent good wishes to people in the north and told them to stay together and be strong. The Be strong Chile topic suggested a

remedy to face the disaster, especially when people were expecting a tsunami to arrive to the Chilean shore.

The qualitative textual analysis identified similar patterns as those observed in the STM model regarding framing functions. Yet, textual analysis found news readers strongly focused on *causal interpretations* when discussing earthquake-related news – even more than what STM was able to capture. The qualitative textual analysis found three causal interpretations for the disaster: President Bachelet as jinxed, 27/F as a learning experience, and former President Sebastián Piñera as responsible for Bachelet’s government’s performance in 2014. The first two interpretations coincided with the two causal interpretations topics found in the STM model – Jinxed and 27/F. The third interpretation (President Piñera) emerged from the qualitative textual analysis and was not captured by the STM model. Each interpretation is discussed in the paragraphs below.

President Bachelet as jinxed

Chile is no stranger to natural disasters. Besides being an active earthquake zone, the country is often affected by wildfires, landslides, volcanic eruptions, and floods due to overflowing rivers (Correa et al., 2016). Chilean presidents constantly deal with crises derived from such disasters. During her first presidency (2006-2010), Michelle Bachelet managed a volcanic eruption in the south—Chaitén, May 2008—, a 7.7 magnitude earthquake in the north—Tocopilla, November 2007—, and the mega earthquake and tsunami in Concepción on February 2010 (Radio Agricultura, 2015). From 2010 to 2014, Sebastián Piñera dealt with the aftershocks of the 2010 earthquake in Concepción, the rescue of 33 trapped Chilean miners in the Atacama Desert—Copiapó, October 2010—, a volcanic eruption in the south—Puyehue, June 2011—and several wildfires in 2012 (Hernández, 2012). These tragedies garnered international attention, to the point the BBC

wrote a piece about a series of situations of "bad luck" concerning Piñera's presidency (Hernández, 2012). Yet, it would be Michelle Bachelet's second term (2014-2018) that would be strongly associated with bad luck. According to Peruvian newspaper *El Comercio*, President Bachelet faced eight catastrophes during the first 18 months of her second presidency (*El Comercio*, 2015). In the 2017 President's annual address, Bachelet said her team was working on eight reconstruction programs derived from 15 catastrophes occurring during her entire second presidency (24Horas.cl, 2017). Subsequently, President Bachelet's association with bad luck became a recurring theme in public conversation, especially on social media.

The 2014 earthquake struck northern Chile three weeks after Michelle Bachelet started her second presidency. Social media users immediately compared the disaster with the 2010 earthquake in Concepción when President Bachelet was ending her first term. The hashtag *#BacheletYeta* (Bachelet Jinxed) became quickly adopted on Twitter and Facebook, and the idea of the president bringing bad luck to the country was discussed profusely in the comments posted to the earthquake-related stories:

"Jinxed! First term: 8.8 earthquake. Second term: 8.2 earthquake. This lady is scary..."

"Bachelet is a confirmed symbol of tragedies for Chile. She is jinxed... twice."

(*La Nación*, 2014, April 2; my translation).

The idea of President Bachelet as a jinxed person increased when she and a group of her ministers flew from Santiago to Iquique the morning after the earthquake. She met with local authorities and evaluated the damage caused by the disaster in person. That night (April 2, 2014) a 7.6-magnitude earthquake struck the northern coast again. This

was the strongest aftershock following the April 1 earthquake and triggered panic among residents as well as a new tsunami alert. Ironically, the President and her team were staying at a hotel located in the flood hazard area, so they had to be quickly evacuated. This event prompted a series of comments about President Bachelet bringing bad luck wherever she went:

“As soon as Bachelet arrived in the north a second earthquake happened – 7.6 magnitude! She is definitely jinxed, her connection with evil is real! She irradiates tragedy.”

“We should ask her to live on an island and rule from there... then we would avoid more tragedies in Chile... she is connected to the dark side.”

(*La Tercera*, 2014, April 1; my translation).

President Bachelet was seen as a magnet for tragedies, suggesting she was the only reason the country was affected by natural disasters. Powers beyond the scope of human understanding did not want her to rule the country and expressed their will sending chaos and catastrophes. A closer glance to the comments revealed this interpretation engaged news readers contesting the Jinxed approach:

“People in the north – go find refuge in churches, where you should ask for forgiveness for having chosen a Marxist government. That will stop the tsunami that’s coming to punish us for taking the Marxist path.”

“Are you stupid or are you in shock?”

“Why do you have to say so many stupid things instead of thinking of those truly concerned about our families... You go to church – you are clearly the one who needs it the most.”

(EMOL, 2014, April 1; my translation).

As observed in the example above, the Jinxed interpretation was not shared – by any means – by the entire group of news commenters. Some readers strongly criticized the *#BacheletJinxed* idea, calling out those who believe a president could have any influence on the country’s natural disasters:

“This lady left us an earthquake, brought us an earthquake, and Piñera has to fix it all. And then Piñera is the one being criticized and Bachelet gets all the votes in Dichato... and we think Chilean people are smart, ha ha ha...”

“And you think suggesting a person has the ability to “bring” and earthquake is smart?”

“It impresses me that a country whose citizens just got allowed to enter the U.S. without a visa connects these natural phenomena with superstitions.”

(*La Tercera*, 2014, April 1; my translation).

The following two categories found in the analysis are less related to paranormal forces and more with political analysis of past events.

27/F as a learning experience

According to the last public opinion poll conducted during her first presidency, Michelle Bachelet had an 84% approval rating in February 2010 just days before the 27/F disaster in Concepción (Adimark GfK, 2010). This is the highest level of approval a Chilean president has ever achieved when leaving office (Délano, 2010). However, the poor management of the 27/F catastrophe disappointed many. Two key moments explain people’s disappointment: the lack of a tsunami warning and the belated decision of sending the army to patrol the streets.

Because of a series of misunderstandings between the National Emergency Office (ONEMI, from the initials in Spanish) and the Navy Hydrographic and Oceanographic Service (SHOA, from the initials in Spanish), people on the coast were told there was no tsunami danger, and they did not have to evacuate. But the Pacific Tsunami Warning Center (PTWC) in Hawaii informed the SHOA that a tsunami was highly possible given the characteristics of the earthquake. The person at the SHOA did not speak English and did not understand the warning from the PTWC (Ramírez, & Aliaga, 2012). The earthquake occurred at 3:34 a.m. on February 27, 2010. The first wave hit the coast at 3:49 a.m., and several waves did so after that, devastating the central coast and killing more than a hundred people. But the government did not learn this information on time, and at 5:40 a.m., the President held a press conference and said no tsunami waves had been registered by the SHOA (Ramírez & Aliaga, 2012). Based on the textual analysis of the comments, the images of the president not knowing about the tsunami were still latent in the people's memory:

“The lessons people learn from past mistakes... No hesitation to give a tsunami alert for an 8.2-magnitude earthquake, but for the 8.8-magnitude quake in 27/F they took forever to warn us about the tsunami...”

“And they just needed the 27/F deaths to learn.”

(*La Tercera*, 2014, April 1; my translation).

The second key moment was President Bachelet's decision of putting the army in charge of the public order. After 17 years of a military dictatorship that killed, tortured and/or imprisoned more than 40,000 people (The Associated Press, 2011), the Chilean army generates mixed feelings in public opinion. Bachelet herself was tortured by the military under the dictatorship of Augusto Pinochet (BBC, 2017). When she was

supposed to send in the army to restore order in the worst hit parts of Chile in 2010, she was hesitant. One of her ministers, Sergio Bitar, advised her against it. "Imagine, for a coalition that has governed this country for 20 years and that fought against the dictatorship, the idea of having the military on the streets was not easy," Minister Bitar told the BBC in March 2010 (Long, 2010). But food shortages and lack of electricity created scenes of desperation, and episodes of looting and violence made the decision inevitable – President Bachelet ended up ordering 10,000 soldiers to protect supermarkets, pharmacies, banks, and department stores (Saldaña & Parra, 2013).

In 2014, in contrast, she sent the army to the streets without hesitation. That is why news commenters used the “lessons learned” causal story to explain the President’s actions:

“The Army on the streets, helping and watching. Well done Michelle, you are learning.”

“Apparently, Madam Bachelet did learn something from 27/F. The earth was still shaking when Bachelet was already sending the army to help, she ordered the evacuation of the coast, and declared state of emergency. Yes, it seems she did learn something...”

(*La Tercera*, 2014, April 1; my translation).

When the first earthquake-related stories were published online the night of April 1, 2014, and before President Bachelet made any decision about the actions to follow, some comments indicated President Bachelet might have not “learned the lesson” from past mistakes, and people on the northern coast should not wait for a potential tsunami alert to flee the ocean. Commenters advised those in the north to take refuge as soon as possible:

“Do not listen to the fat woman nor the ONEMI. Do not wait and run away to the hills – now!”

(EMOL, 2014, April 1; my translation).

Yet, once President Bachelet ordered a massive evacuation on the entire national coast, some news readers initiated a conversation judging her ability to react accordingly:

“Technically speaking, overreacting is also a synonym of inefficiency... she is just making sure of not repeating the huge mistake made in 27/F that left exponentially larger damage... overreaction and very little action... do you see the inefficiency and little expertise?”

(*La Tercera*, 2014, April 1; my translation).

The last category found in the qualitative textual analysis revealed that, for news readers, President Bachelet’s management of the 2014 disaster had less to do with her actions in 2010 and more with changes introduced by former President Piñera to improve emergency protocols.

President Piñera as responsible for a successful crisis management

Harvard-trained economist Sebastián Piñera was one of the richest men in Chile when he took office in March 2010 (BBC, 2010). During his campaign, Piñera promised to apply his business know-how to government. But because of the 27/F disaster in the southern coast, President Piñera acknowledged he would have to reassess his plans to focus on the reconstruction (BBC, 2010). One of the things President Piñera accomplished was the restructuring of the National Emergency Office (ONEMI, from the initials in Spanish), changing the protocols established for massive emergencies. First, President Piñera appointed former army general Ricardo Toro as the new ONEMI Director. Toro served as a part of The United Nations Stabilization Mission in Haiti

(MINUSTAH) and was stationed in Port au Prince in 2010 when a 7.7-magnitude earthquake destroyed the city. That event gave him first-hand knowledge about giant earthquakes (Franklin, 2015).

Second, Piñera created the National Committee for Emergency Operations (COE, from the initials in Spanish) led by the Minister of Home Affairs and Public Security along with the ONEMI director including members of the army and the national police. This committee (and not the President) was the agency in charge of coordinating the first response to any emergency. Because of these protocols, President Bachelet did not go to the ONEMI headquarters the night of the 2014 earthquake but stayed in *La Moneda* Palace⁵⁰ monitoring the emergency.

Third, Piñera allocated the equivalent of about US\$10 million to improve ONEMI facilities across the country. All of these changes were seen as the reason President Bachelet managed the 2014 disaster in a better way than she did in 2010, and news readers felt strongly about it:

“Thank you President Piñera for the ONEMI you left us!”

(*La Tercera*, 2014, April 2; my translation).

“Piñera’s ONEMI is very different from the one Bachelet had during her first term. The current ONEMI is professional, well-equipped and well-organized, with a reaction speed according to the country’s needs. This is very different from what we had during the 27/F. THANKS PRESIDENT PIÑERA!”

(*La Tercera*, 2014, April 1; my translation).

⁵⁰ *La Moneda* Palace is the seat of the President of the Republic of Chile.

Readers also mentioned previous ONEMI Director and former journalist Carmen Fernández. Readers valued that General Toro was in charge of ONEMI by the time of the 2014 earthquake and tsunami:

“Since 2012 a former military officer is in charge of the ONEMI – that’s why everything has been very different from the 2010 disaster with Carmen Fernández.”

(*La Tercera*, 2014, April 1; my translation).

These findings reveal news readers suggested several *causal interpretations* when making sense of the 2014 disaster. One of them, 27/F as a learning experience, was also suggested by the media, but President Bachelet as jinxed, and President Piñera’s previous work with ONEMI were interpretations introduced by the public and did not come from topics emphasized by the media or the Chilean government.

SUMMARY

This chapter focused on the analysis of 4,168 news comments posted to 483 stories published by national newspapers EMOL, *La Tercera*, and *La Nación*. By using Structural Topic Modeling (STM), the analysis found 10 topics that summarized the online conversation posted to earthquake-related news stories. Eight of these topics were used in the subsequent analyses based on interpretability and meaning: Delegates, Be strong Chile, 27/F, Seismology, Allowance, Jinxed, Speculation, and Church.

Findings from one-way ANOVA tests indicated newspaper ideology does have an influence on how readers discuss news stories. The Jinxed topic was significantly more prominent in comments posted to right-wing newspapers *La Tercera* and EMOL, while the 27/F topic was more prominent in *La Tercera*. These two topics were highly negative in tone toward President Bachelet, blaming her from bringing bad luck to the country and

recalling her poor performance when managing the 2010 disaster in southern Chile. The Allowance topic was more prominent in comments posted to *La Nación*. This topic discussed the allowance provided by the government to those who lost their housing. As compared to Jinxed and 27/F, the tone was less negative in this topic, probably because news readers from this outlet (usually associated to the left-wing) might be Bachelet supporters. No differences were found regarding the topics of Delegates, Be strong Chile, Seismology, Speculation, and Church.

The correlations between media and public opinion topics revealed news readers do discuss the news and do echo what the media say. Yet, they are able to introduce new topics into the conversation. They construct responses to media narratives that may be in consonance with what the media report, may add a new perspective, or may even contest media information. When newspapers compared President Bachelet's performance during the 27/F and 2014 disasters, news readers also made that same comparison, and that is why these two topics (Bachelet in the media and 27/F in the public) were significantly correlated. However, readers also introduced other narratives in response to the Bachelet stories like the Jinxed narrative, for instance. Again, the analysis by outlet showed differences among readers from the three newspapers. Twenty-two significant positive correlations in EMOL media and public opinion topics were found. This means EMOL readers were much more able to discuss EMOL news stories as the majority of the themes emphasized by this paper obtained a significant response from its readers. In contrast, many media topics were ignored by *La Nación* readers, who focused more on local issues such as media topics Jailbreak and Water.

In terms of framing functions, news readers heavily focused on problems and causes. Two problems were identified by STM: Seismology (earthquake magnitude and scope) and Delegates (government bureaucracy and crisis-management skills). Similarly,

two causal interpretations were suggested by public opinion topics: Jinxed (President Bachelet as a source of bad luck) and 27/F (government's history of poor decisions). The qualitative textual analysis added another causal interpretation: former President Piñera as responsible for successfully managing a crisis. This narrative was entirely introduced by the news readers as neither the media and certainly not the government suggested President Piñera had anything to do with how President Bachelet's team managed the 2014 disaster aftermath.

The qualitative textual analysis found news readers did comment on issues beyond the realm of the disaster. As discovered by previous research, this type of event allows citizens to express their anger and dissatisfaction with several aspects of public life – aspects that might not be directly (or not even at all) related to the disaster (Cottle, 2006; 2009). In this study, news readers showed the strong divide that still persists around the figure of Chilean dictator Augusto Pinochet. News readers also expressed their feelings toward neighbor countries such as Peru and Bolivia where past animosities may not necessarily be forgotten (or forgiven). Further, readers showed their frustration regarding how politics and economy seem to always favor Santiago versus other regions in Chile.

Interestingly enough, the analysis found reporters do not use news comments as information sources. Despite readers being able to introduce new themes in the conversation, those comments are taken into account only in very specific circumstances:

“Social media is a very democratic space where everyone can comment, and I love that. But I also think a lot of readers are poorly informed, and that makes them irresponsible commenters, even dangerous commenters. I do not use social media or news comments to write my stories” (journalist from *La Tercera*; personal communication, March 28, 2017; my translation).

“The only news comments I care about are my sources’ comments. If they see something wrong in my story, I fix it, at least in the online version of it. I take information from news comments depending on who the commenter is” (journalist from *La Tercera*; personal communication, March 31, 2017; my translation).

Although EMOL does moderate comments on its website, journalists are not allowed to interact with news readers, which could improve the quality of the discussion. A study by Stroud et al. (2015) found that reporter involvement was related to lower levels of incivility and greater use of evidence from commenters. Similarly, Marchionni (2013) found that stories in which journalists engaged with commenters positively fostered a sense of relationship – readers perceived the real person behind the news and considered that person as friendly and open to citizen contribution. This might be the key to increase the quality of the conversation, as comments left by others can affect subsequent comments. If a user comes to a discussion where most of the comments are civic or contain mainly thoughtful comments, this user will be more likely to post civic/thoughtful comments as well (Sukumaran et al. 2011). These findings suggest that Chilean news organizations could allow their reporters to engage with the news readers to foster high quality conversations.

A journalist from *La Nación* indicated he reads and uses comments for his stories. This ended up being the only reporter with a positive opinion about news readers’ comments and the only one acknowledging he sees news comments as a useful tool when reporting:

“Sometimes I get information from a source and it’s incomplete, and a news reader notices and comments on it. Then I fact-check that and fix it. It’s also helpful to know what readers want. I do believe it is important for readers to comment, it’s useful. I actually use readers’ comments for my stories; some of them have contacted me to provide me with information” (journalist from *La Nación*; personal communication, April 3, 2017).

La Nación had significantly fewer comments posted to earthquake-related stories as compared to EMOL and *La Tercera*. It might be the case *La Nación* reporters do not have to deal with the same incivility levels observed in EMOL and *La Tercera*, given the smaller volume of comments posted. Yet, they do encounter incivility even toward reporters themselves:

“Many of our news readers troll us directly. They read us and criticize us. At the end of last year, we contacted three of them for an interview to ask them why they do that. They were surprised, but they agreed to the interview, and it was a very successful piece on the website” (journalist from *La Nación*; personal communication, April 3, 2017).

The qualitative textual analysis added rich, thick descriptions to the STM findings. Word frequency and co-occurrence are relevant for model estimation. Thus, concepts or ideas that do not appear together frequently may not be considered as potential topics. Qualitative textual analysis was a powerful technique to identify subtle ideas that did not appear as frequently as the Jinxed concept did, for instance, but were relevant to understand what (and most importantly how) elements became important in the online earthquake-related discussion.

DISCUSSION

Chapter 7. An integrative approach for the study of disasters

This dissertation examined the narratives of the Chilean government, media, and public opinion when informing, covering, and discussing the 2014 earthquake and tsunami in northern Chile. By using Structural Topic Modeling, qualitative textual analysis, and in-depth interviews, this study observed how news stories, official press releases, and online news comments framed the disaster. Guided by framing theory, Matthes' integrative approach (2012) was employed to simultaneously observe the frames produced by the three actors of the framing process.

This final chapter is organized in the following structure: First, I describe the 2014 disaster and the political environment in the country at the time the earthquake struck northern Chile. I also describe the media outlets included in the study and the data analyzed to measure media, government, and public opinion frames. In the following section I present a review of the main findings from Chapters 5 and 6. Then, I discuss the implications of those results for framing theory, and I describe the methodological innovations implemented in this study. Finally, I address weaknesses and strengths of this dissertation along with the potential for future research.

POLITICAL AND MEDIA CONTEXT

Chile is no stranger to natural disasters – that is why disasters are said to be “normalized” in the country (Correa et al., 2016). Chilean citizens have become used to the occurrence of these events, and in the case of earthquakes, they express more desensitized and rational responses as compared to other types of disasters (such as fires, for instance) (Correa et al., 2016).

Chilean presidents constantly deal with crises derived from such disasters. Michelle Bachelet, Chile's first female president, has faced volcanic eruptions, wildfires and landslides while in office, but earthquakes are perhaps the crisis costing her a high price in terms of popular support.

Bachelet has been elected to office twice: from 2006 to 2010, and from 2014 to present. Just days before she ended her first four-year term, a massive 8.8-magnitude earthquake struck the center and southern regions of Chile on February 27, 2010. Also known as 27/F, this is the sixth largest earthquake ever recorded in history, and it generated tsunami waves that destroyed Chile's central coast and Juan Fernandez Island totaling a loss of close to \$30 billion (Mendoza et al., 2010). Because of a series of misunderstandings between the National Emergency Office and the Navy Hydrographic and Oceanographic Service, President Bachelet and her team failed to set a tsunami alert right after the earthquake, and when the tsunami did hit the coast, more than a hundred people drowned (Ramírez, & Aliaga, 2012). Her government's response to the disaster was highly criticized by the media and through public opinion, and her crisis-management skills were questioned even by the international press (Hough, 2010).

Four years later, when President Bachelet began her second presidency, an 8.2-magnitude earthquake struck the coast of northern Chile on April 1, 2014. During this earthquake, Bachelet set a precautionary tsunami alert for the entire Chilean coast and evacuated 900,000 people in the north. In her first official press release, Bachelet said "the tsunami alert was set promptly" and emphasized the government's work to protect people's lives and belongings (*Prensa Presidencia*, 2014).

The government's response to this second large-magnitude earthquake was indeed faster and more efficient than the response to the 27/F disaster in 2010. There were six casualties – none of them caused by the tsunami waves that followed the earthquake

(Univision, 2014). Then, the government portrayed its own performance as a successful one, where all actors did their job to minimize disaster consequences (*Prensa Presidencia*, 2014). Yet, the narratives emerging from Chilean media and public opinion did not necessarily reflect the government's efficiency frame. The main findings from this dissertation indicate the media framed the governmental response as a result of the lessons learned back in 2010, while the public framed it as a consequence of changes introduced by former President Sebastián Piñera to the National Emergency Office while he was in power from 2010 to 2014. The following sections discuss these findings in detail.

This study analyzed 705 earthquake-related stories published by national newspapers EMOL, *La Tercera* and *La Nación*, and local newspaper *El Longino* from April 1 (the night of the earthquake) to April 30, 2014. EMOL is the online version of *El Mercurio*, a news outlet historically linked to the Chilean right wing and considered the most important newspaper in the country (Mönckeberg, 2009). *La Tercera* is also considered a right-wing outlet and is *El Mercurio's* closest competitor (Mazotte, 2014). *La Nación*, a newspaper usually associated as left wing, used to be state-owned and it is currently published online only by the private company *Comunicaciones Lanet S.A.* (journalist from *La Nación*; personal communication, April 10, 2017). *El Longino* has a regional scope in northern Chile, and it was the main source of information in the areas struck by the earthquake. These stories provided data to identify the main themes emphasized in the disaster media coverage and the frames used by the media to portray the event.

The analysis also included 174 press releases retrieved from the website of 14 ministries directly involved with the earthquake's consequences: the National Emergency Office; *Prensa Presidencia* (Chilean Presidency Press Office), and the local government

of the two regions most affected by the earthquake – the Tarapacá Region, and the Arica and Parinacota Region. Press releases provided the data to identify the main themes emphasized by the government when reporting on the disaster and the frames used by the government to portray the event.

Finally, this study analyzed 4,168 online comments posted to stories published by national newspapers EMOL, *La Tercera* and *La Nación* as a way to explore how Chilean public opinion formed around the earthquake-related stories and what frames news readers used to portray the event.

REVIEW OF FINDINGS

Chapter 5 focused on the frame functions used by the Chilean government and media outlets when reporting on the 2014 earthquake. In addition to identifying frame functions, this chapter also explored how journalists cover disaster in a context where disasters are said to be “normalized” (Correa et al., 2016) and where the country’s economic and political environment significantly affect the way the media system works.

Chapter 6 focused on the frame functions used by Chilean public opinion when commenting on the 2014 earthquake in online environments. It also observed the relationship between the media and the public narratives, in order to find differences and similarities between these two actors.

The following sections discuss the main themes found in the government, media, and public opinion narratives, the influence of ideology in the news content, and the frames and frame functions used to portray the 2014 disaster.

Main themes in the government and media narratives

Chapter 5 focused on themes emphasized by the Chilean government and news media when reporting on the 2014 earthquake and tsunami in northern Chile. Structural Topic Modeling (STM) found 20 topics that were discussed in both the news stories and official press releases. The three most important topics were Authorities, Seismology and Tsunami. These topics emphasized a) the official response to the disaster's consequences, b) the characteristics of the earthquake and subsequent aftershocks, and c) the tsunami warning and evacuation of the northern coast, respectively. It is worth mentioning that the Authorities topic was emphasized mostly by the government, while the Seismology and Tsunami topics were significantly more prominent in the national media coverage. Then, while the government focused on portraying ministers and officers as efficient crisis managers, the media paid significantly more attention to the disaster itself.

Previous research has identified five frames commonly used in disaster coverage: Political implications, economic impact, environmental impact, human interest, and crime (Li, 2007, Houston et al., 2012), being human interest the most prominent angle to frame disaster-related stories (Houston et al., 2012; Wenger, et al., 1980; Yang, 2012). Unlike these findings, human interest was not found to be the most prominent theme in the 2014 disaster narrative. Although it did emerge as a topic in the STM analysis, it was not at the top of the list. Instead, Chilean authorities emerged as a theme of its own as official press releases strongly emphasized the governmental work, and stories heavily relied on official sources to report on disaster consequences. There are three possible explanations for these findings.

First, research has found the human-interest angle is more salient in crises involving a large number of casualties (Li, 2007). Fortunately, only six people died as a consequence of the 2014 earthquake. This number is extremely low as compared to

recent earthquakes in Chile and other places in the world, such as Haiti in 2010 where the death toll reached more than 220,000 casualties (CNN, 2016). As such, the low number of casualties might have impacted the number of human interest stories published by Chilean newspapers. One of the reasons why the 2014 disaster left a low number of fatalities was the immediate evacuation of 900,000 residents in the northern coast. The evacuation was covered in the Tsunami topic, which was the second most salient theme in the news coverage. Then, news stories paid more attention to the details of the evacuation than individual stories of pain and sorrow.

Second, the news coverage of the 27/F disaster in 2010 was strongly criticized through public opinion and by media ethics institutions because of the excessive use of drama and devastation in the stories (especially TV stories). According to Puente et al. (2013), Chilean media outlets were negatively evaluated for “the way in which it faced the pain of the victims, for having triggered in viewers worry and excessive sadness, and because it would have left engraved in their memories images of destruction, devastation, suffering and looting” (p. 107). The 27/F disaster caused episodes of violence and lootings in several towns. In the case of Concepcion, news coverage did not only focus mostly on the looting episodes – it also reported about hordes of people coming from the periphery to the city, stealing and destroying everything in their path. Those hordes never existed – yet, people raised barricades on the street entrances and established night vigilance, waiting for the supposed looting crowd (Saldaña & Parra, 2013). The outlets reporting on these events never apologized for causing fear and anxiety in the audience, but this experience might have prevented the media from using excessive amounts of sensationalism in 2014. In addition, Chile’s National Media Ethics Council recommended journalists not use excessive sensationalism while covering disaster related stories (Consejo de Ética de los Medios de Comunicación, 2010). That recommendation might

also help explain why media coverage of the 2014 earthquake included fewer drama and human-interest stories.

Third, the political context at the time the earthquake occurred made the coverage extremely political in nature. In a country where natural disasters (earthquakes, volcano eruptions, landslides) are common and therefore “normalized” (Correa et al., 2016), the coverage often focuses on aspects that stand beyond the ordinary. In the case of the 2014 disaster, the extraordinary aspect manifested itself in President Bachelet facing the same situation she had to manage when she left office in 2010, which constitutes a unique case in Chilean history. This represents the first time a president was reelected in Chile since 1952 (Chile Collector, n.d.). As such, the coverage of Bachelet herself is a very particular and historic occurrence. The situation became even more so when she again had to deal with an event that eroded her previous popularity level and portrayed her as an inefficient leader.

However, negative media portrayal of authorities in times of disaster is not exclusive to the Chilean context. Studies in other countries have shown the media may negatively evaluate the official response to a catastrophe and transmit this evaluation to the audiences. During Hurricane Katrina in 2005, the media blamed those in charge for their lack of leadership when dealing with the hurricane’s consequences (Littlefield & Quenette, 2007). Similarly, during the 2004 tsunami in Sumatra, the response from Swedish authorities was rather slow and the government was strongly criticized in the media. The media coverage, in turn, led the audience to believe there were strong reasons to be critical of the government’s efforts to rescue Swedish citizens from the areas affected by the tsunami (Strömbäck & Nord, 2006).

These studies indicate the power of the media to affect the public’s evaluation of the government. The problem emerges when the media overstep their role of objective

observers and attribute blame based on ideological reasons, i.e. when the media take advantage of the authorities' poor crisis management to impose their own political agenda. Sections below taps into this issue in detail.

Main themes in the public opinion narrative

Chapter 6 focused on themes emphasized by online news readers when commenting on the 2014 earthquake-related stories. Structural Topic Modeling (STM) found 10 topics to be salient in the public online discussion. The three most important topics were Delegates, Be Strong Chile, and 27/F. These topics a) discussed President Bachelet's decision of appointing presidential delegates for the reconstruction in northern Chile, b) expressed feelings of empathy with the suffering of those affected by the earthquake, and c) used the 27/F disaster as a benchmark to understand the earthquake in 2014, respectively.

Literature on counterpublic theory argues comments on websites are a space to react against hegemonic mainstream public spheres (Toepfl & Piwoni, 2015). As such, news readers are likely to develop narratives that contest the discourse of mainstream actors such as the media or political elites. In line with this literature, this study found alternative narratives that did not follow the themes emphasized by the government or the media. For instance, one of the explanations about the causes of the 2014 earthquake and tsunami was the Jinxed topic. Newsreaders indicated President Bachelet was a source of bad luck, and as such, the country should be ready to face all sort of natural disasters as a punishment for electing Bachelet as president for a second term. This narrative did not echo media or government topics – it was seen exclusively in the news comments, and particularly in comments posted to right-wing outlets.

Another alternative narrative was one involving former President Sebastián Piñera. Although he had already left office when the 2014 disaster occurred, Piñera emerged as a winner in the court of public opinion. One of the causal interpretations provided by the public was the idea of Piñera being responsible for a successful crisis management. Changes introduced during his watch allowed for a complete restructuring of the National Emergency Office and its protocols. As such, newsreaders identified these changes (and by extent, Piñera) as responsible for Bachelet's successful performance in 2014. Interestingly enough, this narrative was not initiated by the media – not even by the right-wing outlets that have previously shown positive bias toward him in the past (Navia & Osorio, 2015). This causal story was delineated exclusively by Chilean public opinion when providing causal interpretations for the disaster. Even though President Piñera was extremely unpopular while in office, findings suggest this narrative was promoted by readers from right-wing outlets who may be more likely to support him.

The public also discussed topics beyond the realm of the disaster, such as the strong divide that persists around the figure of Chilean dictator Augusto Pinochet; the animosities toward neighboring countries such as Peru and Bolivia, and the inequities between Santiago versus other regions in Chile. These findings are consistent with literature indicating crises trigger ongoing political tensions and debates (Cottle, 2006), and provide chances for individuals to express frustrations about issues not at all related to the actual disaster.

These findings confirm what other studies have found regarding Chile – that political trust is low among Chilean citizens, and the government is one of the least trusted institutions (CEP, 2017). Despite the government's successful crisis management during the 2014 disaster, President Bachelet did not succeed in improving her public-evaluation rating, and those who supported her when posting comments were not loud

enough to create countertopics for the Jinxed narrative. Structural Topic Modeling did not identify a single positive topic category regarding Bachelet in the comments posted, and neither did the qualitative analysis of the comments – readers were critical of the Jinxed perspective because they found it absurd, but not because they attempted to defend Bachelet from her detractors.

Media ideology and the use of past events

In line with Gitlin’s arguments (1980), ideology does have an effect on how the media frame news stories, and how the public perceives reality. Findings indicate the right-wing newspaper *La Tercera* mentioned the 27/F disaster significantly more than other outlets when reporting on the 2014 disaster. President Bachelet and her team were strongly criticized for their crisis-management skills during the 2010 disaster. Then, attempts to bring the 2010 disaster up in the news coverage may have been driven not only by the intention to provide a thematic coverage of the event, but by political attempts of exposing Bachelet government’s past mistakes. As indicated by reporters themselves: “*La Tercera* has made its goal to expose President Bachelet,” and “The paper likes seeing Bachelet weak” (journalist from *La Tercera*; personal communication, March 31, 2017; my translation). Not surprisingly then, the government did not refer to the 27/F disaster to provide context for their actions.

Newsreaders from *La Tercera* mentioned the 27/F significantly more than readers from EMOL or *La Nación* when discussing the 2014 earthquake. Yet, this synchrony between media and audience cannot be automatically understood as the effects of the media on the audience. Readers from *La Tercera* used the Jinxed narrative significantly more than readers from other outlets, and this narrative was not provided by news stories from *La Tercera*. In fact, it was not provided by the media at all. Thus, the fact that media

and audience discussed themes in similar ways (as shown in the correlations calculated in Chapter 6) does not mean the media frames directly affected the public discourse – it just means that both actors had a similar interpretation of the issue at stake. As predicted by the hypotheses presented in Chapter 3, the more adversarial the outlet is to President Bachelet’s government, the more the outlet’s coverage will use the 27/F disaster as a benchmark to explain the 2014 earthquake, and the more its readers will do the same when commenting on the 2014 disaster. *La Tercera* is perceived as a right-wing outlet by Chilean citizens, and it has indicated negative bias toward President Bachelet in the past (Navia & Osorio, 2015). Then, this outlet possibly attracts right-wing readers that are also critical of Bachelet, and that is the reason that *La Tercera*’s narrative paralleled its readers’ narrative.

Even if the media coverage and the public conversation brought the 27/F up for discussion only with the goal of exposing the government, the use of past events to explain previous ones can produce positive outcomes. Previous research indicates that stories not including information on what caused the disaster or what influenced responses to the disaster (i.e. the past) provides for a weaker, episodic narrative that does not foster critical understanding of the disaster and a reflection on present and future actions (Houston et al., 2012). Then, the news coverage and public conversation of the 2014 disaster may have opened venues for a more critical understanding of the role the government should play in crisis management.

Frame functions in government, media, and public opinion content

According to Entman (1993), frames perform four functions: they define problems, identify causes, offer moral judgments, and suggest solutions. Findings in Chapter 5 showed national newspapers highlighted problems and causes thereof. Both

national and local media discussed moral evaluations, while the government omitted defining problems, identifying causes, or making judgments as the official information focused mostly on providing solutions. The public, on the other hand, focused mostly on causal interpretations and moral evaluations according to findings in Chapter 6.

Stone's (1989) typology of Causal Theories may explain why the official press releases did not focus on problem definitions but on treatment recommendations. For Stone, a bad condition does not become a problem *until people see it as amenable to human control*, i.e. when bad conditions are attributed to human behavior instead of to accident, fate or nature.

As such, the 2014 earthquake and subsequent tsunami was not defined as a *problem* by the Chilean government as no human intervention could be blamed for it – there is no scientific way to prevent an earthquake or a tsunami. Human control can only be exerted to manage earthquake or tsunami consequences. Then, the government's story portrayed authorities acting quickly and efficiently to evacuate the coast and send food and medicines to the affected regions.

Conversely, the right-wing media (especially *La Tercera*) attributed the government performance in 2014 to the lessons learned from the 2010 disaster in southern Chile. Right-wing outlets did not portray the 2014 disaster *as a problem* in Stone's sense of the concept (attributable to human action), but it was framed as the outcome of a previous disaster *that did become a problem* as hundreds of people died because of human error (Ramírez & Aliaga, 2012).

However, public opinion constantly pushed the interpretation of the 2014 disaster out of the realm of accident and into the realm of human control (Stone, 1989). As such, three causal stories to explain the 2014 earthquake and tsunami and the governmental response to it emerged in public discussion. First, President Bachelet was jinxed and she

attracted disasters to the country. Second, her team poorly managed the 27/F disaster in southern Chile and they were trying not to make the same mistakes in 2014. Third, former President Piñera introduced changes to the disaster protocols, and that helped Bachelet's government to do a better job in 2014.

If we fit this dissertation's findings into generic frames identified by previous studies, we could argue the national media used the attribution of responsibility frame (Semetko & Valkenburg, 2000) and the political implications frame (Houston et al., 2012; Li, 2007), as the tone of the coverage strongly emphasized political responsibilities. The local media used the economic impact frame (Houston et al., 2012; Li, 2007; Semetko & Valkenburg, 2000) and to some extent the human interest frame (Houston et al., 2012; Li, 2007; Semetko & Valkenburg, 2000), as they reported on economic losses and problems affecting citizens in the north. The government focused on the economic impact frame (Houston et al., 2012; Li, 2007; Semetko & Valkenburg, 2000) and the rescue/treatment frame (Yang, 2012), while public opinion mostly used the attribution of responsibility frame (Semetko & Valkenburg, 2000) and the political implications frame (Houston et al., 2012; Li, 2007), just like the national media did.

Yet, the most important goal of this dissertation was not to identify previously developed frame categories, but mostly frame functions. The same frame might vary in terms of the provided solution, or even the identified problem. As discussed above, both the national media and the public attributed responsibilities to the government but in significantly different ways. Thus, looking for framing functions is a more nuanced and precise path to understand how different actors portray the same issue and with what intentions.

THEORETICAL CONTRIBUTIONS

This investigation advances the field of framing research by applying three theoretical perspectives to the study of disaster coverage. This was accomplished first by using Matthes' (2012) integrative approach to observe the narratives of the Chilean government, media, and public during a massive earthquake and subsequent tsunami. The second was to go beyond the study of previously established frames to focus on Entman's (1993) frame functions. And the third was using Stone's (1989) causal stories to identify how different actors identified problems and causes thereof.

Most studies conducting framing research have focused on news frames and the factors affecting frame building (Scheufele, 1999). Only a few scholars have simultaneously explored the involvement of the three key actors in the framing process: political elites, news media, and public opinion. Each one of these actors is exposed to news frames and, to some extent, is able to produce frames or to have some influence on the framing process. Matthes (2012) proposes an integrative approach to bridge the various stages of framing – from the political elite to the news media and finally to the public.

According to Matthes (2012), the framing process is negotiated and contested in at least two stages of news content creation – when political actors bring their own frames to the attention of journalists and media organizations, and when news frames compete with previous cognitive elaborations in the minds of citizens to shape their interpretations of issues, candidates and events. That is why the integrative model aims for the study of these three actors to fully understand the complexities of the framing process.

By applying Matthes' integrative approach, this dissertation was able to simultaneously explore the involvement of the three key actors in narratives of the 2014

disaster. Findings showed the public partially accepted media frames (such as the political implications of the disaster) while it rejected the government frames (the idea of “efficiency” embedded in the rescue/treatment frame). The successful management of the disaster was not attributed to President Bachelet’s government but to former president Sebastián Piñera. Thus, negative evaluations already held against Bachelet were reinforced by the 2014 disaster despite how the government framed its own performance. We could assume *La Tercera* readers would be more critical as a result of the influence this right-wing outlet had on them, but this behavior was shared by readers from other outlets, too. These findings would have not emerged had this study observed only one or two actors at the same time.

When identifying frames and frame functions as defined by Entman (1993), problem definition and causal interpretation become the main elements to look at in communicating contexts. Any further moral evaluation and/or treatment recommendation will depend on how the problem is defined and what factors originated it. That is why Stone's causal stories became a useful approach to observe how different actors define problems and attribute responsibility. Following Stone (1989), this dissertation found that causal stories differed for each actor depending on whether they attributed responsibilities to fate or to human actions. Consistent with this typology, Chilean government avoided mentioning the 27/F and pushed for the accidental causal story instead of the attribution of blame. It is important to mention that Entman’s framing functions and Stone’s causal stories are not competing theories but complementary approaches, which allowed me to observe how different actors portrayed the stories and discussion of the disaster in 2014.

More broadly, this study matters because of its implications for democracy in a context where natural disasters are normalized. Citizens who suffer damage in disaster

contexts present lower evaluations of democratic institutions, lower support for democratic values and practices, and stronger dispositions toward action (Carlin et al., 2014). As such, understanding how Chilean citizens assessed the government's performance is crucial to address the impact of a natural disaster on public opinion formation.

METHODOLOGICAL INNOVATIONS

This dissertation applied an inductive, quantitative analysis called Structural Topic Modeling to identify how the government, media, and public opinion framed the 2014 earthquake and tsunami in Chile. While topic models were initially implemented by Blei, Ng, and Jordan in 2003, the use of topic modeling in communication is relatively new. Consequently, just a few studies in our field have made this methodological choice (see Guo et al., 2016).

Several authors have pointed out methodological issues related to finding frames (DiMaggio et al., 2013; Matthes & Kohring, 2008). When conducting qualitative analysis, the interpretations of frames are usually subjective and, therefore, hard to reproduce. Researchers do not always disclose the criteria they used to identify frames, creating a methodological black box where the process of finding frames remains entirely unclear (Guo et al., 2016; Matthes & Kohring, 2008; Tankard, 2001).

When undertaking quantitative content analysis, human coding is impractical if the body of material is too large, and intercoder reliability levels are difficult to achieve. Likewise, content analysis requires a coding scheme that, in turn, implies researchers already know what is worth finding in the texts before having analyzed them. Researchers might look for frames identified by previous studies, but those might not necessarily suit the topic under investigation (Matthes & Kohring, 2008).

Topic modeling proved to be a feasible tool for solving these issues. By applying topic modeling to the study of framing, this study was able to identify themes that were salient in the text. A relevant task in framing research is finding dominant ideas and salient concepts. But what is salient for some may not be for others. “Salience is a product of the interaction between text and receivers,” says Entman (1993, p. 55). The researcher must interact with the text to find salient elements in the content. And again – what is salient for a researcher may not be for the text receivers, and there is a risk of finding “researcher’s frames” instead of valid frames (Matthes & Kohring, 2008). That is why the analysis requires looking at all involved actors simultaneously to observe each actors’ frames. By identifying topics salient in communication texts from the government, media and audience, this dissertation was able to examine how these topics interrelated and therefore, how government, media and public frames may relate to each other. Yet, applying topic modeling was not enough to find actual frames. Instead, this technique was useful to identify salient themes that in turn allowed me to find patterns of coverage. Such patterns (and not the themes individually) were the key to identify frames and framing functions, but a more nuanced analysis was needed to obtain definitive findings.

Besides using topic modeling, this dissertation used news comments as a proxy for public opinion. Many scholars deploy surveys to measure people’s attitudes and behavior. However, in the case of disasters, relying on what respondents recall about their thoughts or impressions during the event might not be the most accurate way of measurement. Instead, analyzing comments allows researchers to observe not what people said they thought, but what they actually thought, as expressed in their comments; how they reacted to other people’s opinions and in general, what their first impressions

were regarding the disaster. Findings from this dissertation prove comments were a valid form to study the many themes people discussed while the disaster unfolded.

The method applied in this dissertation combines the advantages of automated text analysis with the nuances of qualitative interpretation. A pilot study conducted with a subset of the comments revealed topic modeling did not entirely capture all the narratives discussed because comments do not necessarily follow formal language rules (such as grammar, syntax, or even spelling). Interactions between readers were also not reflected by topic modeling. Then, this dissertation strengthened the scope of the quantitative analysis by adding thick, in-depth interpretation to the findings.

Lastly, this study conducted interviews with reporters covering the 2014 earthquake and disaster in northern Chile. While interviews have become a popular method for understanding how journalists approach their work, only a few framing studies interview journalists to understand the framing process – most research examines news content and infer how the communicator intended to frame the message (see Lewis & Reese, 2009; and Reese & Lewis, 2009, for an exception to this pattern).

For the case of this dissertation, interviews allowed for a more holistic understanding of the coverage shedding light on issues such as why *La Tercera* placed so much importance on the political implications of the disaster, or why the authorities became the most salient topic in the narrative. Reporters were told by their editors that the coverage had to take on a political angle. Also, they used reader comments mostly as a system of awareness (Hermida, 2010; Mourao, 2016), monitoring online conversations to know people's opinions but not necessarily using those as a proper source. Contrary to what other studies have found regarding unofficial sources in disaster coverage (Andsager & Powers, 1999; Pantti & Wahl-Jorgensen, 2011; Shehata, 2010), stories

reporting on the 2014 disaster relied heavily on official sources – probably because of the political angle journalists adopted instead of the human-interest angle.

The triangulation of methods (topic modeling, qualitative textual analysis, and interviews) as well as datasets (news stories, government press releases, and online news comments) included in this dissertation makes this study a unique assembly, where the in-depth analysis of the three actors of the framing process provided robust, more reliable results. By triangulating methods and datasets, this study hopes to make a methodological contribution to the study of framing.

LIMITATIONS

Newspapers are the most important agenda setters and the most frequently used source for political information in Chile (Godoy & Gronemeyer, 2012). That is the reason this dissertation analyzed news stories published by four Chilean newspapers instead of using other news platforms. Understandably, including only information taken from print press might provide a limited picture of disaster news coverage in the country. Previous studies have shown a great deal of sensationalism and melodrama in Chilean newscasts when covering disasters (CNTV, 2010). As such, it is likely that coverage patterns on television provide human interest stories at the expense of those including a political angle.

Similarly, the media outlets included in this study correspond to what the literature refers to “quality newspapers”—especially EMOL and *La Tercera*—as opposed to more “populist” oriented newspapers in the country. Populist outlets are published in tabloid newspaper format as well as online, and give very little coverage to economic and political issues. The most popular ones are *La Cuarta* (owned by *Copesa S.A.*) and *Las Últimas Noticias* (owned by *El Mercurio S.A.P*) (Navia & Osorio, 2015). Eventually, the

coverage of the 2014 disaster may be different in populist outlets, and their readers could hold opinions about the disaster and the government that differ from the opinions held by EMOL and *La Tercera* readers.

Another caveat resides in the lack of comments from *El Longino* readers. Unfortunately, this newspaper does not allow user comments on its website, and therefore the perspective of those directly affected by the 2014 disaster (that could have been captured by analyzing comments from local outlets) is missing. Interviews with people affected by the earthquake and tsunami would have been helpful, but having access to these subjects was beyond the scope and possibilities of this dissertation. Similarly, this study did not include interviews with reporters from *El Longino*, because the stories published by this paper did not include the journalists' names. As such, they could not be invited to participate in this study. Including other news outlets from northern Chile could have overcome some of these problems, but unfortunately, there was no available story archives from other local newspapers.

Finally, this dissertation would have benefitted from in-depth interviews with government officials. While the analysis of official press releases allowed for the identification of the themes emphasized by the authorities, it was not possible to determine how they made decisions regarding what to communicate or what strategies they employed to gain the attention of the press.

POTENTIAL FOR FUTURE RESEARCH

Based on the limitations described above, future research could replicate this study by looking at other sources of information such as broadcast television or “populist” oriented newspapers. Digital platforms such as Twitter or Facebook should

also be considered, given the high level of social media penetration in the country (Saldaña et al., 2016).

Interviews with reporters from local outlets would help achieve a more nuanced understanding of how the disaster was covered by local media. Likewise, interviews with government public relations officers would be beneficial to observe the government-media relationship and how the tensions between these two actors are negotiated in times of disaster.

Despite the fact disaster news coverage is said to be episodic and event centered (Miller & Goidel, 2009), the news coverage of the 2014 disaster, particularly by right-wing newspaper *La Tercera*, contained significant amounts of thematic interpretation. The stories put the disaster in context and the government was held accountable for past actions. Yet, the ultimate intention of the paper might not have been to increase coverage quality, but to expose a government the outlet disagreed with. Studies on disaster coverage should take into account the specific context in which catastrophes occur as factors beyond the realm of the disaster might also serve to influence news content. As such, the design implemented by this dissertation could be extrapolated to other countries with different political regimes.

Finally, studies could also look at other types of disasters to see if the patterns follow. As of June 2017, President Bachelet had faced 15 catastrophes occurring during her second presidency (24Horas.cl, 2017). While previous research has compared people's reactions to two different disasters under the same government (Correa et al., 2016), the focus has been solely on audience's perceptions of the coverage but not on the coverage itself. As shown by this project, simultaneously observing the three actors of the framing process provides a more precise picture of how different narratives compete to frame issues their own way.

APPENDICES

APPENDIX A – BATTERY OF QUESTIONS (TRANSLATED TO SPANISH)

1.- Please describe your working relation with politicians. Would you say it is a formal relationship, or is it more like a friendly, informal relationship?

2.- Politicians usually use several strategies to get journalists' attention and media coverage. What kind of strategies do you see in your daily work, if at all?

3.- Did politicians use any of these strategies while you covered the 2014 earthquake?

4.- When you receive a government press release, what considerations make you decide to follow up on that story instead of just writing a piece with the official information you received? In other words, what makes you include new information, find different angles, or cite new sources?

5.- In the case of the 2014 earthquake, to what extent did you include new information, find different angles, and cite new sources to complement the official press releases?

6.- Generally speaking, government, police, military, and other authority figures are considered "official sources". If alternative, non-official sources were used in the earthquake stories, how did you decide which sources to use? Were those decisions already established in your newsroom? Did you follow editors' instructions? Or did you make this decision on your own?

7.- Some stories used the 2010 earthquake as background information to explain the 2014 disaster's implications. Did you do that as well? Why?

8.- Thinking of the stories you wrote when the story broke, what was the main focus of the story?

9.- Now, thinking of the follow-up stories, what was the main focus? Was it the same as the breaking news focus?

10.- Thinking of the 2014 earthquake, how important was your audience when writing earthquake-related stories? Did you monitor social media to find out what people said about the earthquake? And about the government's performance?

11.- If you did monitor social media, did you use social media as input/source for your stories?

12.- Did you read the comments posted below your stories? If you did, did you use those for follow-up reporting?

13.- Did you engage in conversations with online-news readers?

14.- If online news comments directly questioned or challenged your stories, how often did you reply to those comments?

15.- Did the news comments have any influence on how you wrote the earthquake-related stories?

APPENDIX B. POST HOC TESTS – TOPIC COMPARISON BY NEWS OUTLET (MEDIA)

Bonferroni – Multiple Comparisons			
Topics	(I) Outlet	(J) Outlet	Mean Difference (I-J)
Reconstruction	EMOL	<i>La Tercera</i>	-.00311
		<i>La Nación</i>	-.00937
		<i>Longino</i>	-.05035229*
	<i>La Tercera</i>	EMOL	.003114
		<i>La Nación</i>	-.00625
		<i>Longino</i>	-.04723791*
	<i>La Nación</i>	EMOL	.009366
		<i>La Tercera</i>	.006252
		<i>Longino</i>	-.04099
	<i>Longino</i>	EMOL	.05035229*
		<i>La Tercera</i>	.04723791*
		<i>La Nación</i>	.040986
Human Interest	EMOL	<i>La Tercera</i>	-.04085
		<i>La Nación</i>	-.02656
		<i>Longino</i>	.010751
	<i>La Tercera</i>	EMOL	.040853
		<i>La Nación</i>	.014298
		<i>Longino</i>	.05160478*
	<i>La Nación</i>	EMOL	.026555
		<i>La Tercera</i>	-.0143
		<i>Longino</i>	.037307
	<i>Longino</i>	EMOL	-.01075
		<i>La Tercera</i>	-.05160478*
		<i>La Nación</i>	-.03731
Help	EMOL	<i>La Tercera</i>	.008872
		<i>La Nación</i>	-.00218
		<i>Longino</i>	-.08652482*
	<i>La Tercera</i>	EMOL	-.00887
		<i>La Nación</i>	-.01106
		<i>Longino</i>	-.09539666*
	<i>La Nación</i>	EMOL	.002184
		<i>La Tercera</i>	.011055
		<i>Longino</i>	-.08434126*
	<i>Longino</i>	EMOL	.08652482*
		<i>La Tercera</i>	.09539666*
		<i>La Nación</i>	.08434126*

Fishermen	EMOL	<i>La Tercera</i>	.029186	
		<i>La Nación</i>	.026551	
		<i>Longino</i>	.013351	
	<i>La Tercera</i>	EMOL		-.02919
		<i>La Nación</i>		-.00264
		<i>Longino</i>		-.01584
	<i>La Nación</i>	EMOL		-.02655
		<i>La Tercera</i>		.002635
		<i>Longino</i>		-.0132
	<i>Longino</i>	EMOL		-.01335
		<i>La Tercera</i>		.015835
		<i>La Nación</i>		.0132
Flights	EMOL	<i>La Tercera</i>	.020841	
		<i>La Nación</i>	.019895	
		<i>Longino</i>	.07082539*	
	<i>La Tercera</i>	EMOL		-.02084
		<i>La Nación</i>		-.00095
		<i>Longino</i>		.04998395*
	<i>La Nación</i>	EMOL		-.0199
		<i>La Tercera</i>		.000946
		<i>Longino</i>		.05093
	<i>Longino</i>	EMOL		-.07082539*
		<i>La Tercera</i>		-.04998395*
		<i>La Nación</i>		-.05093
Highways	EMOL	<i>La Tercera</i>	-.00773	
		<i>La Nación</i>	-.01155	
		<i>Longino</i>	-.01364	
	<i>La Tercera</i>	EMOL		.007726
		<i>La Nación</i>		-.00383
		<i>Longino</i>		-.00592
	<i>La Nación</i>	EMOL		.011553
		<i>La Tercera</i>		.003827
		<i>Longino</i>		-.00209
	<i>Longino</i>	EMOL		.013642
		<i>La Tercera</i>		.005917
		<i>La Nación</i>		.002089

Jobs	EMOL	<i>La Tercera</i>	.0154
		<i>La Nación</i>	-.01817
		<i>Longino</i>	-.01248
	<i>La Tercera</i>	EMOL	-.0154
		<i>La Nación</i>	-.03357
		<i>Longino</i>	-.02788
	<i>La Nación</i>	EMOL	.018166
		<i>La Tercera</i>	.033565
		<i>Longino</i>	.005689
	<i>Longino</i>	EMOL	.012477
		<i>La Tercera</i>	.027876
		<i>La Nación</i>	-.00569
Jailbreak	EMOL	<i>La Tercera</i>	-.00064
		<i>La Nación</i>	.015424
		<i>Longino</i>	.024502
	<i>La Tercera</i>	EMOL	.000638
		<i>La Nación</i>	.016062
		<i>Longino</i>	.02514
	<i>La Nación</i>	EMOL	-.01542
		<i>La Tercera</i>	-.01606
		<i>Longino</i>	.009078
	<i>Longino</i>	EMOL	-.0245
		<i>La Tercera</i>	-.02514
		<i>La Nación</i>	-.00908
Tsunami	EMOL	<i>La Tercera</i>	.051287
		<i>La Nación</i>	.035187
		<i>Longino</i>	.13452647*
	<i>La Tercera</i>	EMOL	-.05129
		<i>La Nación</i>	-.0161
		<i>Longino</i>	.08323963*
	<i>La Nación</i>	EMOL	-.03519
		<i>La Tercera</i>	.0161
		<i>Longino</i>	.09933948*
	<i>Longino</i>	EMOL	-.13452647*
		<i>La Tercera</i>	-.08323963*
		<i>La Nación</i>	-.09933948*

Water	EMOL	<i>La Tercera</i>	-.01514
		<i>La Nación</i>	.000594
		<i>Longino</i>	-.03723
	<i>La Tercera</i>	EMOL	.015138
		<i>La Nación</i>	.015732
		<i>Longino</i>	-.0221
	<i>La Nación</i>	EMOL	-.00059
		<i>La Tercera</i>	-.01573
		<i>Longino</i>	-.03783
<i>Longino</i>	EMOL	.037234	
	<i>La Tercera</i>	.022096	
	<i>La Nación</i>	.037828	
Valparaíso	EMOL	<i>La Tercera</i>	-.02849
		<i>La Nación</i>	-.01972
		<i>Longino</i>	-.02461
	<i>La Tercera</i>	EMOL	.028493
		<i>La Nación</i>	.008776
		<i>Longino</i>	.003886
	<i>La Nación</i>	EMOL	.019717
		<i>La Tercera</i>	-.00878
		<i>Longino</i>	-.00489
	<i>Longino</i>	EMOL	.024607
		<i>La Tercera</i>	-.00389
		<i>La Nación</i>	.00489
Authorities	EMOL	<i>La Tercera</i>	-.02
		<i>La Nación</i>	.011635
		<i>Longino</i>	.00249
	<i>La Tercera</i>	EMOL	.02
		<i>La Nación</i>	.031635
		<i>Longino</i>	.02249
	<i>La Nación</i>	EMOL	-.01163
		<i>La Tercera</i>	-.03163
		<i>Longino</i>	-.00914
	<i>Longino</i>	EMOL	-.00249
		<i>La Tercera</i>	-.02249
		<i>La Nación</i>	.009144

Schools	EMOL	<i>La Tercera</i>	-0.00987
		<i>La Nación</i>	.038065
		<i>Longino</i>	-.04132
	<i>La Tercera</i>	EMOL	.009869
		<i>La Nación</i>	.047934
		<i>Longino</i>	-.03145
	<i>La Nación</i>	EMOL	-.03807
		<i>La Tercera</i>	-.04793
		<i>Longino</i>	-.07938043*
	<i>Longino</i>	EMOL	.041315
		<i>La Tercera</i>	.031447
		<i>La Nación</i>	.07938043*
Explanations	EMOL	<i>La Tercera</i>	-.04015
		<i>La Nación</i>	.012571
		<i>Longino</i>	.02025
	<i>La Tercera</i>	EMOL	.040154
		<i>La Nación</i>	.05272478*
		<i>Longino</i>	.06040426*
	<i>La Nación</i>	EMOL	-.01257
		<i>La Tercera</i>	-.05272478*
		<i>Longino</i>	.007679
	<i>Longino</i>	EMOL	-.02025
		<i>La Tercera</i>	-.06040426*
		<i>La Nación</i>	-.00768
Medical Assistance	EMOL	<i>La Tercera</i>	.013515
		<i>La Nación</i>	-.04008
		<i>Longino</i>	-.04432
	<i>La Tercera</i>	EMOL	-.01351
		<i>La Nación</i>	-.05359
		<i>Longino</i>	-.05783628*
	<i>La Nación</i>	EMOL	.040078
		<i>La Tercera</i>	.053593
		<i>Longino</i>	-.00424
	<i>Longino</i>	EMOL	.044322
		<i>La Tercera</i>	.05783628*
		<i>La Nación</i>	.004244

Housing	EMOL	<i>La Tercera</i>	-.02547
		<i>La Nación</i>	-.00527
		<i>Longino</i>	-.02953
	<i>La Tercera</i>	EMOL	.02547
		<i>La Nación</i>	.0202
		<i>Longino</i>	-.00406
	<i>La Nación</i>	EMOL	.00527
		<i>La Tercera</i>	-.0202
		<i>Longino</i>	-.02426
	<i>Longino</i>	EMOL	.029533
		<i>La Tercera</i>	.004063
		<i>La Nación</i>	.024262
Bachelet	EMOL	<i>La Tercera</i>	-.01254
		<i>La Nación</i>	.002885
		<i>Longino</i>	.006486
	<i>La Tercera</i>	EMOL	.012539
		<i>La Nación</i>	.015424
		<i>Longino</i>	.019025
	<i>La Nación</i>	EMOL	-.00288
		<i>La Tercera</i>	-.01542
		<i>Longino</i>	.003601
	<i>Longino</i>	EMOL	-.00649
		<i>La Tercera</i>	-.01903
		<i>La Nación</i>	-.0036
Local Commerce	EMOL	<i>La Tercera</i>	-.00257
		<i>La Nación</i>	.044238
		<i>Longino</i>	-.02499
	<i>La Tercera</i>	EMOL	.002568
		<i>La Nación</i>	.046806
		<i>Longino</i>	-.02243
	<i>La Nación</i>	EMOL	-.04424
		<i>La Tercera</i>	-.04681
		<i>Longino</i>	-.06923150*
	<i>Longino</i>	EMOL	.024994
		<i>La Tercera</i>	.022426
		<i>La Nación</i>	.06923150*

Seismology	EMOL	<i>La Tercera</i>	.027833
		<i>La Nación</i>	-.03925
		<i>Longino</i>	.06833257*
	<i>La Tercera</i>	EMOL	-.02783
		<i>La Nación</i>	-.06709
		<i>Longino</i>	.040499
	<i>La Nación</i>	EMOL	.039253
		<i>La Tercera</i>	.067086
		<i>Longino</i>	.10758558*
	<i>Longino</i>	EMOL	-.06833257*
		<i>La Tercera</i>	-.0405
		<i>La Nación</i>	-.10758558*

* The mean difference is significant at the .05 Level.

**APPENDIX C. POST HOC TESTS – TOPIC COMPARISON BY SOURCE
(MEDIA AND GOVERNMENT)**

Bonferroni – Multiple Comparisons			
Topics	(I) Outlet	(J) Outlet	Mean Difference (I-J)
Reconstruction	National Media	Local Media	-.04714930*
		Government	-.09903768*
	Local Media	National Media	.04714930*
		Government	-.05188838*
	Government	National Media	.09903768*
		Local Media	.05188838*
Human Interest	National Media	Local Media	.03282755*
		Government	.05657295*
	Local Media	National Media	-.03282755*
		Government	.023745
	Government	National Media	-.05657295*
		Local Media	-.02375
Help	National Media	Local Media	-.08967290*
		Government	-.00894
	Local Media	National Media	.08967290*
		Government	.08073034*
	Government	National Media	.008943
		Local Media	-.08073034*
Fishermen	National Media	Local Media	-.00399
		Government	-.01446
	Local Media	National Media	.00399
		Government	-.01047
	Government	National Media	.014459
		Local Media	.01047
Flights	National Media	Local Media	.05824890*
		Government	.029258
	Local Media	National Media	-.05824890*
		Government	-.02899
	Government	National Media	-.02926
		Local Media	.028991

Highways	National Media	Local Media	-.00812
		Government	-.04913353*
	Local Media	National Media	.008115
		Government	-.04101817*
	Government	National Media	.04913353*
		Local Media	.04101817*
Work	National Media	Local Media	-.01496
		Government	-.03960109*
	Local Media	National Media	.014965
		Government	-.02464
	Government	National Media	.03960109*
		Local Media	.024636
Jailbreak	National Media	Local Media	.021568
		Government	.05435172*
	Local Media	National Media	-.02157
		Government	.032784
	Government	National Media	-.05435172*
		Local Media	-.03278
Tsunami	National Media	Local Media	.10642933*
		Government	.10693592*
	Local Media	National Media	-.10642933*
		Government	.000507
	Government	National Media	-.10693592*
		Local Media	-.00051
Water	National Media	Local Media	-.03121
		Government	-.02433
	Local Media	National Media	.031214
		Government	.006886
	Government	National Media	.024328
		Local Media	-.00689
Valparaiso	National Media	Local Media	-.00896
		Government	-.09656512*
	Local Media	National Media	.008963
		Government	-.08760261*
	Government	National Media	.09656512*
		Local Media	.08760261*

Authorities	National Media	Local Media	.008197
		Government	-.06820089*
	Local Media	National Media	-.0082
		Government	-.07639834*
	Government	National Media	.06820089*
		Local Media	.07639834*
Schools	National Media	Local Media	-.04519149*
		Government	-.00059
	Local Media	National Media	.04519149*
		Government	.04459992*
	Government	National Media	.000592
		Local Media	-.04459992*
Explanations	National Media	Local Media	.03394198*
		Government	.05236434*
	Local Media	National Media	-.03394198*
		Government	.018422
	Government	National Media	-.05236434*
		Local Media	-.01842
Medical_assistance	National Media	Local Media	-.04150817*
		Government	-.0009
	Local Media	National Media	.04150817*
		Government	.04061005*
	Government	National Media	.000898
		Local Media	-.04061005*
Housing	National Media	Local Media	-.01811
		Government	-.04538662*
	Local Media	National Media	.018106
		Government	-.02728
	Government	National Media	.04538662*
		Local Media	.027281
Bachelet	National Media	Local Media	.010977
		Government	-.0225
	Local Media	National Media	-.01098
		Government	-.03348
	Government	National Media	.022505
		Local Media	.033482

Local Commerce	National Media	Local Media	-.03311078*
		Government	.03394761*
	Local Media	National Media	.03311078*
		Government	.06705839*
	Government	National Media	-.03394761*
		Local Media	-.06705839*
Seismology	National Media	Local Media	.06516490*
		Government	.09918320*
	Local Media	National Media	-.06516490*
		Government	.034018
	Government	National Media	-.09918320*
		Local Media	-.03402

* The mean difference is significant at the .05 level.

APPENDIX D. POST HOC TESTS – TOPIC COMPARISON BY SOURCE (PUBLIC OPINION)

Bonferroni – Multiple Comparisons			
Topics	(I) Outlet	(J) Outlet	Mean Difference (I-J)
27/F	EMOL	<i>La Tercera</i>	-.17543*
		<i>La Nación</i>	-.07496
	<i>La Tercera</i>	EMOL	.17543*
		<i>La Nación</i>	.10047
	<i>La Nación</i>	EMOL	.07496
		<i>La Tercera</i>	-.10047
Allowance	EMOL	<i>La Tercera</i>	.02741
		<i>La Nación</i>	-.08611
	<i>La Tercera</i>	EMOL	-.02741
		<i>La Nación</i>	-.11351*
	<i>La Nación</i>	EMOL	.08611
		<i>La Tercera</i>	.11351*
Speculation	EMOL	<i>La Tercera</i>	-.03274
		<i>La Nación</i>	-.00273
	<i>La Tercera</i>	EMOL	.03274
		<i>La Nación</i>	.03
	<i>La Nación</i>	EMOL	.00273
		<i>La Tercera</i>	-.03
Jinxed	EMOL	<i>La Tercera</i>	.00377
		<i>La Nación</i>	.07623*
	<i>La Tercera</i>	EMOL	-.00377
		<i>La Nación</i>	.07247
	<i>La Nación</i>	EMOL	-.07623*
		<i>La Tercera</i>	-.07247
Be Strong Chile	EMOL	<i>La Tercera</i>	.06658
		<i>La Nación</i>	.03293
	<i>La Tercera</i>	EMOL	-.06658
		<i>La Nación</i>	-.03366
	<i>La Nación</i>	EMOL	-.03293
		<i>La Tercera</i>	.03366

Church	EMOL	<i>La Tercera</i>	.03553
		<i>La Nación</i>	.03045
	<i>La Tercera</i>	EMOL	-.03553
		<i>La Nación</i>	-.00508
	<i>La Nación</i>	EMOL	-.03045
		<i>La Tercera</i>	.00508
Seismology	EMOL	<i>La Tercera</i>	-.0275
		<i>La Nación</i>	.05093
	<i>La Tercera</i>	EMOL	.0275
		<i>La Nación</i>	.07843
	<i>La Nación</i>	EMOL	-.05093
		<i>La Tercera</i>	-.07843
Delegates	EMOL	<i>La Tercera</i>	-.05181
		<i>La Nación</i>	-.09724
	<i>La Tercera</i>	EMOL	.05181
		<i>La Nación</i>	-.04543
	<i>La Nación</i>	EMOL	.09724
		<i>La Tercera</i>	.04543

* The mean difference is significant at the .05 level.

APPENDIX E. ZERO-ORDER PEARSON'S CORRELATIONS BETWEEN MEDIA AND PUBLIC OPINION TOPICS BY SOURCE (N=483)

Correlations EMOL (N=187)

Media topics	Public opinion topics							
	Delegates	Be strong Chile	27/F	Seismology	Allowance	Jinxed	Speculation	Church
Authorities	-0.1	-0.035	.212**	-0.029	0.135	.162*	-0.046	-0.054
Seismology	-0.079	.167*	-0.04	.284**	-0.093	0.059	-0.075	-0.046
Tsunami	-.192**	.283**	-0.034	-0.044	-0.081	.190**	-0.105	.149*
Valparaíso	.276**	-0.055	0.106	0.03	-0.026	-0.032	-0.046	-0.051
Flights	-0.114	0	-0.053	-0.06	-0.102	0.01	-0.056	-0.086
Help	-0.009	-0.112	-0.063	-0.09	.222**	-0.092	0.05	-0.066
Housing	.437**	-0.079	-0.056	-0.048	0.012	-0.057	-0.036	0.025
Schools	0.052	-0.089	-0.06	0.073	0.125	-0.01	-0.028	-0.038
Reconstruction	.222**	-0.066	-0.042	-0.055	.153*	-0.048	-0.039	-0.027
Medical assistance	-0.036	-0.018	-0.057	-0.086	-0.036	-0.017	-0.051	-0.027
Jailbreak	-0.078	-0.096	-0.001	-0.061	-0.05	0.076	0.124	-0.017
Water	.229**	-0.054	-0.05	-0.076	-0.055	-0.063	-0.037	-0.052
Human interest	-0.025	0.058	-0.065	-0.086	.180*	-0.09	0.012	.175*
Bachelet	0.105	-0.071	.187*	-0.067	-0.069	0.017	.147*	-0.025
Fisherman	-0.056	-0.041	-0.051	-0.108	-0.009	-0.092	-0.061	-0.049
Explanations	-0.079	0.011	.313**	.415**	-0.035	-0.086	-0.068	.176*
Local commerce	-0.017	-0.072	-0.024	-0.027	0.014	-0.076	.551**	-0.067
Jobs	0.022	-0.087	-0.033	-0.01	0.017	-0.056	-0.041	-0.051
Highways	.237**	-0.039	-0.035	-0.043	-0.041	-0.037	0.072	-0.029

Correlations *La Tercera* (N=196)

Media topics	Public opinion topics							
	Delegates	Be strong Chile	27/F	Seismology	Allowance	Jinxed	Speculation	Church
Authorities	-0.01	-0.014	.417**	-0.091	.210**	.144*	-0.091	-0.022
Seismology	-0.071	0.024	-0.072	.396**	-0.079	0.041	-0.063	-0.026
Tsunami	-0.119	.418**	0.001	0.008	-0.092	0.031	-0.089	.178*
Valparaiso	.259**	-0.068	0.071	-0.064	0	0.046	-0.06	-0.045
Flights	-0.129	0.01	-0.102	-0.104	-0.09	-0.074	-0.076	0.034
Help	0.121	-0.036	-0.081	-0.07	0.016	-0.06	0.005	0.031
Housing	.352**	-0.07	-0.076	-0.069	0.043	-0.005	.234**	-0.035
Schools	-0.072	-0.074	-0.105	-0.098	-0.076	-0.028	-0.078	-0.046
Reconstruction	.174*	-0.058	-0.05	-0.061	0.024	-0.037	-0.044	-0.039
Medical assistance	-0.004	-0.038	-0.008	0.002	0.015	-0.031	0.004	-0.023
Jailbreak	-0.106	-0.054	0.065	-0.089	0	0.071	0.013	-0.027
Water	0.113	0.054	-0.075	-0.047	0.088	0.04	0.029	-0.026
Human interest	-0.065	-0.06	-0.095	0.002	0.037	-0.092	-0.029	-0.009
Bachelet	-0.058	0.003	0.129	-0.021	-0.025	0.105	0.068	-0.035
Fisherman	0.057	-0.036	0.081	-0.048	-0.04	-0.018	0.03	-0.019
Explanations	-0.072	-0.048	-0.015	.276**	0.079	-0.051	-0.019	0.024
Local commerce	-0.072	-0.074	-0.096	-0.077	-0.026	-0.086	.209**	-0.035
Jobs	0.011	-0.035	0.038	-0.051	-0.029	-0.041	-0.035	-0.026
Highways	-0.036	-0.007	-0.055	-0.046	-0.027	-0.048	0.103	0.005

Correlations *La Nación* (N=100)

Media topics	Public opinion topics							
	Delegates	Be strong Chile	27/F	Seismology	Allowance	Jinxed	Speculation	Church
Authorities	.071	-.019	.501**	.028	-.077	.053	-.073	-.059
Seismology	-.178	-.116	-.134	.063	-.014	-.079	-.099	-.088
Tsunami	-.162	.405**	.111	.094	-.127	0	-.024	.001
Valparaíso	.453**	.005	-.076	-.035	-.026	-.031	-.037	-.069
Flights	-.133	-.097	-.11	.023	-.032	-.058	-.018	.162
Help	-.036	.001	-.073	-.075	.301**	.032	-.011	.169
Housing	.077	.025	-.009	.056	.045	-.036	-.04	-.051
Schools	.466**	-.05	-.052	-.039	-.035	-.031	-.04	-.044
Reconstruction	.027	-.056	-.065	-.054	-.024	-.035	-.035	.017
Medical assistance	.014	-.071	.071	.142	-.065	-.036	-.077	.055
Jailbreak	-.095	.006	.027	-.052	-.046	.565**	.310**	-.023
Water	-.037	-.048	-.05	-.049	.396**	-.034	.425**	.008
Human interest	-.037	-.004	.003	-.057	.091	-.039	.099	.05
Bachelet	.166	.114	.287**	-.001	-.05	.006	-.055	.02
Fisherman	-.076	.013	-.078	-.068	-.071	-.046	-.06	-.051
Explanations	-.032	-.063	-.08	-.068	-.069	-.042	-.047	-.005
Local commerce	.097	-.039	-.043	-.035	.024	.02	.053	.619**
Jobs	.018	-.074	-.084	-.065	-.082	-.047	-.042	-.067
Highways	.105	-.054	-.049	-.049	.146	-.035	-.034	.019

REFERENCES

- 24Horas.cl (2017, June 1). Cuenta Pública: Los anuncios presidenciales ante desastres naturales. *24Horas.cl*. Retrieved from <http://www.24horas.cl/politica/cuenta-publica-los-anuncios-presidenciales-ante-desastres-naturales-2402728>
- Adimark GfK (2010). Evaluación del Gobierno Post Terremoto. *Adimark GfK*. Retrieved from http://www.adimark.cl/es/estudios/documentos/Ev_Gob_Terremoto2010.pdf
- Almond, G.A., & Verba, S. (1963). *The Civic Culture: Political Attitudes and Democracy in Five Nations*. Princeton: Princeton University Press.
- Andsager, J.L. & Powers, A. (1999). Social or Economic Concerns: How News and Women's Magazines Framed Breast Cancer in the 1990s. *Journalism & Mass Communication Quarterly*, 76(3); 531–550.
- Arancibia Aguilera, M.C., & Montecino Soto, L.A. (2013). El blog de comentarios a textos de opinión en ciberperiódicos: un género en constante reconstrucción. *Literatura y Lingüística*, 28; 123–148.
- BBC (2010, October 16). Profile: Chile's President Sebastian Pinera. BBC. Retrieved from <http://www.bbc.com/news/world-latin-america-11558721>
- BBC (2014, April 2). Así Ocurrió Terremoto en el norte de Chile. *BBC Mundo*. Retrieved from http://www.bbc.co.uk/mundo/noticias/140401_livertext_sismo_norte_de_chile_bd.shtml
- BBC (2017, July 4). Chile country profile. *BBC*. Retrieved from <http://www.bbc.com/news/world-latin-america-19357497>
- Bennett, W.L. (1996). An introduction to journalism norms and representations of politics. *Political Communication*, 13; 373–384.
- Bennett WL (2003). *The Politics of Illusion*. White Plains, NY: Longman.
- Berelson, B. (1952). *Content analysis in communication research*. New York, NY: Free Press.
- Berinsky, A. & Kinder, D.R. (2006). Making sense of issues through media frames: Understanding the Kosovo crisis. *The Journal of Politics*, 68(3); 640–656.
- Bertaglia, C. A. (2013, Feb. 17). El boom del tráfico aéreo en Chile se inclina hacia las ciudades del norte. *La Tercera*. Retrieved from <http://www.latercera.com/noticia/el-boom-del-traffic-aereo-en-chile-se-inclina-hacia-las-ciudades-del-norte/>
- Blei, D.M. (2008). *Modeling science*. Retrieved from <http://www.cs.princeton.edu/~blei/modeling-science.pdf>
- Blei, D.M. (2012). Topic Modeling and Digital Humanities. *Journal of Digital Humanities*, 2(1). Retrieved from <http://journalofdigitalhumanities.org/2-1/topic-modeling-and-digital-humanities-by-david-m-blei/>
- Blei, D.M., Griffiths, T., Jordan, M.I. & Tenenbaum, J. (2003). Hierarchical topic models and the nested Chinese restaurant process. *Advances in Neural Information Processing Systems*, 16; 17–24.

- Blei, D.M. & Lafferty, J. (2006). Dynamic topic models. In *Proceedings of the 23rd International Conference on Machine Learning, 1143859*. Pittsburgh: ACM, 113–20.
- Blei, D.M. & Lafferty, J. (2007). A correlated topic model of Science. *Annals of Applied Statistics*, 1(1); 17–35.
- Blei, D.M., & Lafferty, J.D. (2009). Topic models. In: Srivastava, A.N., Sahami, M. (Eds.), *Text Mining: Classification, Clustering, and Applications* (pp. 71–94). Taylor and Francis, London.
- Blei, D.M., Ng, A.Y., & Jordan, M.I. (2003). Latent dirichlet allocation. *Journal of Machine Learning Research*, 3; 993–1022.
- Cacciatore, M.A., Scheufele, D.D. & Iyengar, S. (2016) The End of Framing as we Know it ... and the Future of Media Effects. *Mass Communication and Society*, 19(1); 7–23.
- Callaghan, K. & Schnell, F. (2001). Assessing the Democratic Debate: How the News Media Frame Elite Policy Discourse. *Political Communication*, 18(2); 183–213.
- Carlin, R.E., Love, G.J., & Zechmeister, E.J. (2014). Natural Disaster and Democratic Legitimacy: The Public Opinion Consequences of Chile’s 2010 Earthquake and Tsunami. *Political Research Quarterly*, 67(1); 3–15.
- Cavallo, A. (2012, August 25). La otra encuesta: 27/F. *La Tercera*. Retrieved from <http://diario.latercera.com/2012/08/25/01/contenido/reportajes/25-116805-9-la-otra-encuesta-27f.shtml>
- CEP (2017). Estudio Nacional de Opinión Pública N° 79, Abril-Mayo. *Centro de Estudios Públicos*. Retrieved from https://www.cepchile.cl/cep/site/artic/20170601/asocfile/20170601155007/encuestacep_abr_may2017.pdf
- Chen, G.M. (2017). *Online Incivility and Public Debate: Nasty Talk*. Austin, TX: Palgrave Macmillan.
- Chen, G.M. & Lu, S. (2017). Online Political Discourse: Exploring Differences in Effects of Civil and Uncivil Disagreement in News Website Comments. *Journal of Broadcasting & Electronic Media*, 61(1), 108–125.
- Chen, G.M. & Pain, P. (2017). Normalizing Online Comments. *Journalism Practice*, 11(7); 876–892.
- Chew, Y.C., Mikami, Y. & Nagano, R.L. (2011). Language Identification of Web Pages Based on Improved N-gram Algorithm. *International Journal of Computer Science Issues*, 8(3); 1694–0814.
- Chile Collector (n.d.). Presidentes de la República 1826 - 1906 / 1906 – 2018. *Chile Collector*. Retrieved from <http://www.chilecollector.com/archwebart/presidentes02.html>
- Chong, D. & Druckman, J.N. (2007). Framing Public Opinion in Competitive Democracies. *American Political Science Review*, 101(4), 637–655.
- Chouliaraki, L. (2010). Ordinary witnessing in post-television news: Towards a new moral imagination. *Critical discourse studies*, 7(4); 305–319.

- Consejo de Ética de los Medios de Comunicación. (2010). Cobertura de noticias en situaciones de catástrofe. Resolución N° 151. *Observatorio Fucatel*. Retrieved from <http://www.observatoriofucatel.cl/wp-content/uploads/2010/05/Cobertura-en-situaci%C3%B3n-de-cat%C3%A1strofe.pdf>
- Cook, T.E. (2005). *Governing with the news: the news media as a political institution* (2nd ed.). Chicago: University of Chicago Press.
- Correa, T., Scherman, A., & Arriagada, A. (2016). Audiences and Disasters: Analyses of Media Diaries Before and After an Earthquake and a Massive Fire. *Journal of Communication*, 66; 519–541.
- Cottle, S. (2006). *Mediatized conflict: developments in media and conflict studies*. Maidenhead, England; New York: Open University Press.
- Cottle, S. (2009). *Global crisis reporting. Journalism in the global age*. New York, NY: Peter Lang.
- CNN (2016, December 28). Haiti Earthquake Fast Facts. *CNN*. Retrieved from <http://www.cnn.com/2013/12/12/world/haiti-earthquake-fast-facts/index.html>
- CNTV (2010). La cobertura televisiva del terremoto desde la ciudadanía. *Consejo Nacional de Televisión*. Retrieved from <https://www.cntv.cl/cntv/site/artic/20111216/asocfile/20111216182554/cobertura-terremoto-desde-la-ciudadana.pdf>
- Daniels, A. & Alexander, H. (2010, January 10). 'Chile's Berlusconi' looks to the presidency. *The Telegraph*. Retrieved from <http://www.telegraph.co.uk/news/worldnews/southamerica/chile/6956761/Chiles-Berlusconi-looks-to-the-presidency.html>
- Déllano, M. (2010, March 10). Bachelet ya es la presidenta más popular de Chile. *El País*. Retrieved from http://internacional.elpais.com/internacional/2010/03/10/actualidad/1268175601_850215.html
- Desilver, D. & Keeter, S. (2015). The challenges of polling when fewer people are available to be polled. *Pew Research Center*. Retrieved from <http://www.pewresearch.org/fact-tank/2015/07/21/the-challenges-of-polling-when-fewer-people-are-available-to-be-polled/>
- Devastating Disasters (2015). Chillan Earthquake – 1939. *Devastating Disasters*. Retrieved from <http://devastatingdisasters.com/chillan-earthquake-1939/>
- De Vreese, C.H. (2005). News framing: Theory and typology. *Information Design Journal + Document Design* 13(1), 51–62.
- De Vreese, C.H., Peter, J., & Semetko, H.A. (2001). Framing politics at the launch of the Euro: A cross-national comparative study of frames in the news. *Political Communication*; 18, 107–122.
- Denzin, N.K. (1978). *The research act: A theoretical introduction to sociological methods*. New York: Praeger.
- DiMaggio, P., Nag, M. & Blei, D. (2013). Exploiting affinities between topic modeling and the sociological perspective on culture: Application to newspaper coverage of U.S. government arts funding. *Poetics*, 41; 570–606.

- Edy, J.A. & Meirick, P.C. (2007). Wanted, Dead or Alive: Media Frames, Frame Adoption, and Support for the War in Afghanistan. *Journal of Communication*, 57; 119–141.
- Eisenstein, J., Ahmed, A., & Xing, E. (2011). Sparse Additive Generative Models of Text. In *Proceedings of ICML*; 1041–1048.
- El Comercio (2015, September, 17). Terremoto en Chile: Bachelet enfrentó 8 catástrofes en 18 meses. *El Comercio*. Retrieved from <http://elcomercio.pe/mundo/actualidad/terremoto-chile-bachelet-enfrento-8-catastrofes-18-meses-198808>
- El Mercurio (2010, March 4). Nuevos desafíos para el próximo gobierno. *El Mercurio*. Retrieved from <http://archivo.de10.com.mx/wdetalle5763.html>
- Entman, R.M. (1991). Symposium Framing US Coverage of International News: Contrasts in Narratives of the KAL and Iran Air Incidents. *Journal of Communication*, 41(4); 6–27.
- Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, 43(4); 51–58.
- Eveland, W.P., Morey, A.C., & Hutchens, M.J. (2011). Beyond Deliberation: New Directions for the Study of Informal Political Conversation from a Communication Perspective. *Journal of Communication*, 61; 1082–1103.
- Field, A.P. (2007). Analysis of Variance (ANOVA). In N.J. Salkind (ed.) *Encyclopedia of Measurement and Statistics*, (pp.33–35). Thousand Oaks: Sage.
- Franklin, J. (2015, September 25). How did Chile manage to survive its recent earthquake virtually unscathed? *The Guardian*. Retrieved from <https://www.theguardian.com/cities/2015/sep/25/how-chile-survive-earthquake-virtually-unscathed>
- Fürsich, E. (2009). In defense of textual analysis. *Journalism Studies*, 10(2); 238–252.
- Gamson, W.A., & Modigliani, A. (1987). The changing culture of affirmative action. In R. G. Braungart & M. M. Braungart (Eds.), *Research in political sociology* (pp. 137–177). Greenwich, CT: JAI Press.
- Gitlin, T. (1980). *The Whole World Is Watching*. Berkeley: University of California Press.
- Glaeser, E.L. (2003). Understanding Santiago de Chile. *Revista: Harvard Review of Latin America*. Retrieved from <https://revista.drclas.harvard.edu/book/understanding-santiago-de-chile>
- Glaser, B.G. & Strauss, A.L. (1967). *The discovery of grounded theory*. New York, NY: Aldine de Gruyter.
- Gobierno de Chile (2010). Plan de reconstrucción terremoto y maremoto del 27 de febrero de 2010. *Prevention Web*. Retrieved from http://www.preventionweb.net/files/28726_plandereconstruccinagosto2010.pdf
- Godoy, S. & Gronemeyer, M.E. (2012). Mapping Digital Media: Chile. *Open Society Foundations*. Retrieved from <https://www.opensocietyfoundations.org/sites/default/files/mapping-digital-media-chile-20121122.pdf>

- Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. New York: Harper & Row.
- Graff, G. (2016). The polls are all wrong. A startup called Civis is our best hope to fix them. *Wired*. Retrieved from <https://www.wired.com/2016/06/civis-election-polling-clinton-sanders-trump/>
- Graham, C., & Sukhtankar, S. (2004). Does Economic Crisis Reduce Support for Markets and Democracy in Latin America? Some Evidence from Surveys of Public Opinion and Well Being. *Journal of Latin American Studies*, 36; 349–77.
- Graham, T. & Wright, S. (2015). A Tale of Two Stories from “Below the Line”: Comment Fields at the Guardian. *The International Journal of Press/Politics*, 20(3); 317–338.
- Gronemeyer, M. E., & Porath, W. (2015). A Study on Homogeneity between Editorials and News Sources Opinions in the Chilean Reference Press. *Cuadernos.info*, 36; 139–153.
- Gronemeyer, M. E., & Porath, W. (2017). Framing Political News in the Chilean Press: The Persistence of the Conflict Frame. *International Journal of Communication*, 11; 2940–2963.
- Günther, E. & Domahidi, E. (2017). What Communication Scholars Write About: An Analysis of 80 Years of Research in High-Impact Journals. *International Journal of Communication*, 11; 3051–3071.
- Günther, E. & Quandt, T. (2016). Word Counts and Topic Models: Automated text analysis methods for digital journalism research. *Digital Journalism*, 4(1); 75–88.
- Guo, L., Vargo, C.J., Pan, Z., Ding, W., & Ishwar, P. (2016) Big Social Data Analytics in Journalism and Mass Communication: Comparing Dictionary-Based Text Analysis and Unsupervised Topic Modeling. *Journalism & Mass Communication Quarterly*, 93(2); 332–359.
- Hall, S. (1975). Introduction. In A. C. H. Smith, E. Immerzi & T. Blackwell (Eds.), *Paper voices: The popular press and social change, 1935-1965* (pp. 1–33). London: Chatto & Windus.
- Hänggeli, R. & Kriesi, H. (2012). Frame Construction and Frame Promotion (Strategic Framing Choices). *American Behavioral Scientist*, 56(3); 260–278.
- Herbst, S. (1998). *Reading public opinion: how political actors view the democratic process*. Chicago: University of Chicago Press.
- Hermida, A. (2010). Twittering the news: The emergence of ambient journalism. *Journalism Practice*, 4(3), 297–308.
- Hernández, V. (2012, January 11). Piñera y los presidentes tachados de "mala suerte." *BBC Mundo*. Retrieved from http://www.bbc.com/mundo/noticias/2012/01/120110_cono_sur_chile_presidente_mala_suerte_psicologia_vh.shtml
- Herrero, V. (2014) *Agustín Edwards Eastman. Una biografía desclasificada del dueño de El Mercurio*. Debate: Santiago.
- Hough, A. (2010, March 4). Chile earthquake: President Michelle Bachelet 'failed to grasp scale of devastation.' *The Telegraph*. Retrieved from

- <http://www.telegraph.co.uk/news/worldnews/southamerica/chile/7131767/Chile-earthquake-president-Michelle-Bachelet-failed-to-grasp-scale-of-devastation.html>
- Houston, J. B., Pfefferbaum, B. & Rosenholtz, C.E. (2012). Disaster News: Framing and Frame Changing in Coverage of Major U.S. Natural Disasters, 2000–2010. *Journalism & Mass Communication Quarterly*, 89(4); 606–623.
- Hoyt, H. (1941). Forces of Urban Centralization and Decentralization. *American Journal of Sociology*, 46(6); 843–852.
- Iannarino, N.T., Veil, S.R. & Cotton, A.J. (2015). Bringing Home the Crisis: How US Evening News Framed the 2011 Japan Nuclear Crisis. *Journal of Contingencies and Crisis Management*, 23(3), 169–181.
- Inflation.edu (n.d.). Inflation Chile 1973. *Inflation.edu*. Retrieved from <http://www.inflation.eu/inflation-rates/chile/historic-inflation/cpi-inflation-chile-1973.aspx>
- Investopedia (n.d.). Organisation for Economic Co-operation and Development – OECD. *Investopedia*. Retrieved from <http://www.investopedia.com/terms/o/oecd.asp>
- Iyengar, S. (1991). *Is Anyone Responsible? How Television Frames Political Issues*. Chicago: University of Chicago Press.
- Jacobi, C., Atteveldt, W., & Welbers, K. (2016). Quantitative analysis of large amounts of journalistic texts using topic modelling. *Digital Journalism*, 4; 89-106.
- Jacobson, D. & Stein, R. (2017). A M~8.3 Chile earthquake has become more likely. *Temblor*. Retrieved from <http://temblor.net/earthquake-insights/a-m8-3-chile-earthquake-has-become-more-likely-3261/>
- Jennings, M.K. (1999). Political Response to Pain and Loss: Presidential Address, American Political Science Association, 1998. *American Political Science Review*, 93(1); 1–13.
- Jick, T. D. (1979). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, 24; 602–611.
- Johnson, R.B., Onwuegbuzie, A.J., & Turner, L.A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2); 112–133.
- Khan, E. (2013) 10 Strongest Earthquakes in History. *Wonderlist*. Retrieved from <http://www.wonderslist.com/10-strongest-earthquakes-in-history>
- Kivikuru, U. (2006). Tsunami Communication in Finland. Revealing Tensions in the Sender–Receiver Relationship. *European Journal of Communication*, 21(4); 499–520.
- Klett, S. (2016). Polls Can Shape Elections, but They Are Flawed by Design. *The Epoch Times*. Retrieved from https://www.theepochtimes.com/polls-can-shape-elections-but-they-are-flawed-by-design_2149282.html
- Klimkiewicz, B. (2010). Introduction. Structural media pluralism. *International Journal of Communication*, 4; 906–913.
- Kreiss, D. (2016). *Prototype Politics: Technological Innovation and the Republican and Democratic Parties, 2000-2014*. Presentation given at the University of Texas at Austin, Austin TX.

- Kreiss, D. (2016b). Seizing the moment: The presidential campaigns' use of Twitter during the 2012 electoral cycle. *New Media & Society*, 18(8); 1473–1490.
- Kreiss, D. (2015). The Networked Democratic Spectator. First Issue/Manifesto. *Social Media and Society*, 1(1).
- Kreiss, D., Meadows, L., & Remensperger, J. (2015). Political performance, boundary spaces, and active spectatorship: Media production at the 2012 Democratic National Convention. *Journalism*, 6(5), 577–595.
- Kvale, S. (1996). *InterViews: An Introduction to Qualitative Research Interviewing*. Thousand Oaks, CA: Sage.
- Kvale, S. & Brinkmann, S. (2009). *Interviews: An Introduction to Qualitative Research Interviewing* (2nd ed.). Thousand Oaks, CA: Sage.
- La Segunda (2014, April 2). Manejo de crisis: Una Presidenta, dos libretos. *La Segunda*. Retrieved from <http://www.lasegunda.com/Noticias/Nacional/2014/04/925694/manejo-de-crisis-una-presidenta-dos-libretos>
- La Tercera (2010, March 2). El gobierno debe garantizar el orden público sin dilaciones. *La Tercera*. Retrieved from <http://www.latercera.com/noticia/el-gobierno-debe-garantizar-el-orden-publico-sin-dilaciones/>
- Malig, E. & Alvarez, M.E. (2014, April 2). Gobierno de Bachelet enfrenta su primera emergencia. *La Tercera*. Retrieved from <http://www.latercera.com/noticia/politica/2014/04/674>
- Lang, K.E. & Lang, G.E. (1989). Collective memory and the news. *Communication*, 11(2); 123–129.
- Lawrence, R. (2000). *The Politics of Force: Media and the Construction of Police Brutality*. Berkeley: University of California Press.
- Lewis, S.C. & Reese, S.D. (2009). What is the War on Terror? Framing through the Eyes of Journalists. *Journalism & Mass Communication Quarterly*, 86; 85–102.
- Li, X. (2007). Stages of a Crisis and Media Frames and Functions: U.S. Television Coverage of the 9/11 Incident during the First 24 Hours. *Journal of Broadcasting & Electronic Media*, 51; 670–87.
- Lippmann, W. (1922). *Public opinion*. New York: Macmillan.
- Littlefield, R.S. & Quenette, A.M. (2007). Crisis Leadership and Hurricane Katrina: The Portrayal of Authority by the Media in Natural Disasters. *Journal of Applied Communication Research*, 35; 26–47.
- Londoño, E. (2017, July 24). President Bachelet of Chile Is the Last Woman Standing in the Americas. *The New York Times*. Retrieved from <https://www.nytimes.com/2017/07/24/world/americas/michelle-bachelet-president-of-chile.html>
- Long, G. (2010, March 3). Chile's army under scrutiny in quake zone. *BBC*. <http://news.bbc.co.uk/1/hi/world/americas/8547653.stm>
- Long, G. (2013, September 9). Chile still split over Gen Augusto Pinochet legacy. *BBC*. Retrieved from <http://www.bbc.com/news/world-latin-america-24014501>

- Long, G. (2014, March 11). Bachelet sworn in as Chilean president, pledges 'fairer' society. *Miami Herald*. Retrieved from <http://www.miamiherald.com/news/nation-world/world/americas/article1961236.html>
- Lucas, C., Nielsen, R., Roberts, M.E., Stewart, B.M., Storer, A., & Tingley, D. (2015). Computer Assisted Text Analysis for Comparative Politics. *Political Analysis*, 23; 254–277.
- Manning, C.D., Raghavan, P., & Schütze, H. (2009). *An Introduction to Information Retrieval*. Cambridge, England: Cambridge University Press.
- Manosevitch, E., & Walker, D. M. (2009). *Reader comments to online opinion journalism: A space of public deliberation*. Paper presented to the 10th International Symposium on Online Journalism, Austin, TX.
- Marchionni, D. (2015) Online Story Commenting. *Journalism Practice*, 9(2); 230–249.
- Martin, J.A. (2013). Closing Gaps in International Knowledge and Participation: News Attention, Online Expression, and the 2010 Haiti Earthquake. *Mass Communication and Society*, 16(3); 417–440.
- Matthes, J. (2012). Framing Politics: An Integrative Approach. *American Behavioral Scientist*, 56(3); 247-259.
- Matthes, J. (2009). What's in a Frame? A Content Analysis of Media Framing Studies in the World's Leading Communication Journals, 1990-2005. *Journalism & Mass Communication Quarterly*, 86(2), 349-367.
- Matthes, J., & Kohring, M. (2008). The content analysis of media frames: Toward improving reliability and validity. *Journal of Communication*, 58(2), 258–279.
- Mazotte, N. (2014). Media Duopoly Threatens Right to Information. *SGI News*. Retrieved from <http://news.sgi-network.org/news/details/2014/1409/media-duopoly-threatens-right-to-information/>
- McCombs, M. & Shaw, D.L. (1972). The agenda-setting function of mass media. *The Public Opinion Quarterly*, 36(2), 176–187.
- McGowan, T. (2012). Rally row: Does the Dakar damage a delicate environment? *CNN*. Retrieved from <http://edition.cnn.com/2012/01/13/sport/motorsport/motorsport-dakar-rally-2012/index.html>
- Medina, M.B. (2014, April 2). El manejo de la Presidenta Bachelet: las diferencias entre el 27/F y el terremoto y tsunami del norte. *La Tercera*. Retrieved from <http://www.latercera.com/noticia/politica/2014/04/674-572266-9-el-manejo-de-la-presidenta-bachelet-las-diferencias-entre-el-27f-y-el-terremoto.shtml>
- Mellado, C. (2012). The Chilean Journalist. In Weaver, D.H. & Willnat, L. (eds). *The global journalist in the 21st century* (pp. 382–399). New York: Routledge.
- Mellado, C., Márquez-Ramírez, M., Mick, J., Oller Alonso, M., Olivera, D. (2016). Journalistic performance in Latin America: A comparative study of professional roles in news content. *Journalism*, 1–20. Advance online publication. doi: 10.1177/1464884916657509

- Mellado C., Van Dalen A. (2017). Challenging the Citizen–Consumer Journalistic Dichotomy. A News Content Analysis of Audience Approaches in Chile. *Journalism & Mass Communication Quarterly*, 94(1); 213–237.
- Mendoza, M., Poblete, B. & Castillo, C. (2010). *Twitter Under Crisis: Can we trust what we RT?* Paper presented at the 1st Workshop on Social Media Analytics, SOMA'10.
- Miller, M. M. & Riechert, B. P. (2001). The Spiral of Opportunity and Frame Resonance: Mapping the Issue Cycle in News and Public Discourse. In Reese, S. D., Gandy, O. H. and Grant, A. E. (Eds), *Framing Public Life: Perspectives on Media and Our Understanding of the Social World* (pp. 107–122). Mahwah, NJ: Lawrence Erlbaum Associates.
- Miller, A., & Goidel, R. (2009). News Organizations and Information Gathering During a Natural Disaster: Lessons from Hurricane Katrina. *Journal of Contingencies & Crisis Management*, 17(4); 266–273.
- Miller, A. & Roberts, S. (2008). *Race in National versus Local News Coverage of Hurricane Katrina: A Study of Sources, Victims, and Negative Video*. Refereed research paper presentation at the Association for Education in Journalism and Mass Communication national convention, Chicago, IL.
- Mimno, D., & McCallum, A. (2008). Topic Models Conditioned on Arbitrary Features with Dirichlet-Multinomial Regression. *UAI*; 411–418.
- Mönckeberg, M.O. (2009). *Los magnates de la prensa. Concentración de los medios de comunicación en Chile*. Debate: Santiago.
- Mohr, J.W., & Bogdanov, P. (2013). Introduction—Topic models: What they are and why they matter. *Poetics*, 41(6), 545–569.
- Mujica, C. & Bachmann, I. (2015a). Beyond the Public/Commercial Broadcaster Dichotomy: Homogenization and Melodramatization of News Coverage in Chile. *International Journal of Communication*, 9; 210–230.
- Mujica, C. & Bachmann, I. (2015b). How Chilean Editors Perceive and Define the Role of Melodrama in Television News. *Palabra Clave – Revista de Comunicación*, 18(2); 312–340.
- Mujica, C. & Bachmann, I. (2016): The Impact of Melodramatic News Coverage on Information Recall and Comprehension, *Journalism Studies*. Advance online publication. doi: 10.1080/1461670X.2016.1190661
- Navia, P. (2016, July 12). Chile is no longer LatAm's brightest star. *Buenos Aires Herald*. Retrieved from <http://buenosairesherald.com/article/217898/chile-is-no-longer--latam%E2%80%99s-brightest-star>
- Navia, P. (2017, March 27). Why Piñera Is the Frontrunner to Return as Chile's President. *Americas Quarterly*. Retrieved from <http://americasquarterly.org/content/why-pinera-frontrunner-return-chiles-president>
- Navia, P. & Osorio, R. (2015). El Mercurio Lies, and La Tercera Lies More. Political Bias in Newspaper Headlines in Chile, 1994–2010. *Bulletin of Latin American Research*, 34(4); 467–485.

- Navia, P., Osorio, R., & Valenzuela, F. (2013). Sesgo político en las lunas de miel presidenciales: El Mercurio y La Tercera, 1994–2010. In A. Arriagada & P. Navia (eds.), *Intermedios. Medios de comunicación y democracia en Chile* (pp. 35–57). Ediciones Universidad Diego Portales: Santiago.
- Nel, P., & Righarts, M. (2008). Natural Disasters and the Risk of Violent Civil Conflict. *International Studies Quarterly*, 52; 159–85.
- Nelson, T.E & Kinder, D.R. (1996). Issue Frames and Group-Centrism in American Public Opinion. *The Journal of Politics*, 58, 1055–1078.
- NOAA (2000). Great Chile Earthquake of May 22, 1960 - Anniversary Edition. *National Oceanic and Atmospheric Administration*. Retrieved from <https://data.noaa.gov/dataset/great-chile-earthquake-of-may-22-1960-anniversary-edition>
- Norris, F.H., Stevens, S., Pfefferbaum, B., Wyche, K.F. & Pfefferbaum, R.L. (2008). Community Resilience as a Metaphor, Theory, Set of Capacities and Strategy for Disaster Readiness. *American Journal of Community Psychology*, 41; 127–50.
- OECD (2010). Chile signs up as first OECD member in South America. *Organisation for Economic Co-operation and Development*. Retrieved from <http://www.oecd.org/chile/chilesignsupasfirstoecdmemberinsouthamerica.htm>
- Page, B.I., Shapiro, R.Y., & Dempsey, G.R. (1987). What Moves Public Opinion? *The American Political Science Review*, 81(1); 23–44.
- Pan, Z. & Kosicki, G. (1993). Framing analysis: An approach to news discourse. *Political Communication*, 10; 55–75.
- Papacharissi, Z. (2004). Democracy online: Civility, politeness, and the democratic potential of online political discussion groups. *New Media & Society*, 6; 259–283.
- Pantti, M.K. & Wahl-Jorgensen, K. (2011). ‘Not an act of God’: anger and citizenship in press coverage of British man-made disasters. *Media, Culture & Society*, 33(1); 105–122.
- Patton, M.Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.
- Pauly, J. (1991). A beginner's guide to doing qualitative research in mass communication. *Journalism Monographs*, (125).
- Pellegrini, S., Puente, S., & Grassau, D. (2015). La calidad periodística en caso de desastres naturales: cobertura televisiva de un terremoto en Chile. *Estudios sobre el Mensaje Periodístico*, 21; 249–267.
- Pew Research Center (2012). Assessing the Representativeness of Public Opinion Surveys. Pew Research Center. Retrieved from <http://www.people-press.org/2012/05/15/assessing-the-representativeness-of-public-opinion-surveys/>
- Ploughman, P. (1995). The American Print News Media ‘Construction’ of Five Natural Disasters. *Disasters*, 19(4); 308–326.
- Prensa Presidencia (2014, April 2). Presidenta decreta Estado de Excepción Constitucional de Catástrofe para Arica y Parinacota, y Tarapacá. *Prensa Presidencia*. Retrieved from <https://prensa.presidencia.cl/comunicado.aspx?id=2513>

- Price, V. (1992). *Public opinion*. Newbury Park, CA: Sage.
- Puente, S. Pellegrini, S. & Grassau, D. (2013). Journalistic Challenges in television coverage of disasters: lessons from the February 27, 2010, earthquake in Chile. *Communication & Society*, 26(4), 103–125.
- Quarantelli, E.L. (1991). *Lessons from Research: Findings on mass communications system behavior in the pre, trans and postimpact periods*. Newark, DE: University of Delaware, Disaster Research Center.
- Radio Agricultura (2015, April 23). Los desastres naturales que han afectado al país durante los gobiernos de Bachelet y Piñera. *Radio Agricultura*. Retrieved from <http://www.radioagricultura.cl/2015/04/23/los-desastres-naturales-que-han-afectado-al-pais-durante-los-gobiernos-de-bachelet-y-pinera/>
- Rao, S. (2012). After September 11 . . . 1973: Chilean Journalism at the Crossroads. *Center for Journalism Ethics*. Retrieved from <https://ethics.journalism.wisc.edu/2012/11/08/after-september-11-1973-chilean-journalism-at-the-crossroads>
- Ramírez, P. & Aliaga, J. (2012). Tsunami paso a paso: los escandalosos errores y omisiones del SHOA y la ONEMI. *CIPER*. Retrieved from <http://ciperchile.cl/2012/01/18/tsunami-paso-a-paso-los-escandalosos-errores-y-omisiones-del-shoa-y-la-onemi/>
- Reese, S. (2001). Framing public life: A bridging model for media research. In S. Reese, O. Gandy, & A. Grant (Eds.), *Framing Public Life: Perspectives on Media and our Understanding of the Social World* (pp. 7–31). Mahwah, NJ: Erlbaum.
- Reese, S.D. & Lewis, S.C. (2009). Framing the War on Terror. The internalization of policy in the US press. *Journalism*, 10(6); 777–797.
- Reel, M. & Smith, J.Y. (2006). A Chilean Dictator's Dark Legacy. *The Washington Post*. Retrieved from https://www.washingtonpost.com/archive/politics/2006/12/11/a-chilean-dictators-dark-legacy/596e14a3-d86c-496f-8568-05f81c199a81/?utm_term=.b776e0ed48f5
- Reporters Without Borders (2006). Reporters Without Borders condemns attacks on press by Pinochet supporters. *Reporters Without Borders*. Retrieved from <https://rsf.org/en/news/reporters-without-borders-condemns-attacks-press-pinochet-supporters>
- Reporters Without Borders (2017). Chile. *Reporters Without Borders*. Retrieved from <https://rsf.org/en/chile>
- Reyes Ortíz, M., Reyes Roman, M., Vial Latorre, A. & Zamorano Soto, J. (1986). Brief description of the effects on health of the earthquake of 3rd March 1985 – Chile. *Disasters*, 10(2); 125–140.
- Ring J. (2013). *Incorrigible while incarcerated: Topic modeling mainstream Canadian news depictions of Ashley Smith* (Doctoral dissertation). Carleton University, Ottawa, Ontario, Canada.
- Roberts, M.E., Stewart, B.M., & Tingley, D. (2014a). *stm: R package for structural topic models. R package version 0.6.21*. software package <http://structuraltopicmodel.com/>

- Roberts, M.E., Stewart, B.M., & Airoidi, E.M. (2016) A Model of Text for Experimentation in the Social Sciences. *Journal of the American Statistical Association*, 111(515); 988-1003.
- Roberts, M.E., Stewart, B.M., Tingley, D., Lucas, C., Leder-Luis, J., Gadarian, S., Albertson, B., and Rand, D. (2014b). Structural Topic Models for Open-Ended Survey Responses. *American Journal of Political Science*, 58; 1064–1082.
- Rojo, A. (2012). Santiago no es Chile. *Sitio Cero*. Retrieved from <http://sitiocero.net/2012/03/santiago-no-es-chile/>
- Rosen-Zvi, M., Griffiths, T., Steyvers, M. & Smyth, P. (2004). The Authorship-Topic Model for Authors and Documents. In *Proceedings of the 20th Conference on Uncertainty in Artificial Intelligence*, edited by Max Chickering and Joseph Halpern, 487–494. Arlington: AUAI Press.
- Saldaña, M. (2014). *Framing disaster: A topic modeling approach for the case of Chile*. Paper presented at MAPOR Annual Conference in Chicago (Nov. 2014).
- Saldaña, M. & Parra, L. (2013). *Media Social Control in a Natural Disaster: A Critical View from Professionals and Citizens*. Paper presented at the 38th AEJMC Annual Southeast Colloquium in Tampa; Open Division.
- Saldaña, M., De Macedo Higgins Joyce, V., Schmitz Weiss, A., & Calmon Alves, R. (2016) Sharing the Stage. *Journalism Practice*, 11(4); 396–416.
- Santiso, J. (2006). *Latin America's political economy of the possible: beyond good revolutionaries and free-marketeers*. Cambridge, Mass.: MIT Press.
- Scanlon, J. (2007). Unwelcome Irritant or Useful Ally? The Mass Media in Emergencies. In H. Rodríguez, E. L. Quarantelli & R. R. Dynes (Eds.), *Handbook of Disaster research* (pp. 413–429). New York: Springer.
- Scheufele, D. (1999). Framing as a theory of media effects. *Journal of Communication*, 49(1); 103–122.
- Seeger, M.W., Sellnow, T.L., & Ulmer, R.R. (2003). *Communication and organizational crisis*. Westport, CT: Praeger.
- Sellnow, T.L. & Seeger, M.W. (2013). *Theorizing Crisis Communication*. Hoboken: John Wiley & Sons.
- Semetko, H.A., & Valkenburg, P.M. (2000). Framing European politics: A content analysis of press and television news. *Journal of Communication*, 50; 93–109.
- Shahin, S. (2016). Right to Be Forgotten. *Journalism & Mass Communication Quarterly*, 93(2); 360–382.
- Shehata, A. (2010). Marking journalistic independence: Official dominance and the rule of product substitution in Swedish press coverage. *European Journal of Communication* 25(2); 123–137.
- Shoemaker, P. & Reese, S.D. (2014). *Mediating the Message in the 21st Century*. New York: Routledge.
- Siavelis, P.M. (2009) Elite-Mass Congruence, Partidocracia and the Quality of Chilean Democracy. *Journal of Politics in Latin America*, 3; 3–31.

- Sicotte, R., Vizcarra, C., & Wandschneider, K. (2010). Military conquest and sovereign debt: Chile, Peru and the London bond market, 1876–1890. *Cliometrica*, 4(3); 293–319.
- Sniderman, P.M. & Theriault, S.M. (2004). The structure of political argument and the logic of issue framing. In W.E. Saris & P.M. Sniderman (Eds.) *Studies in public opinion* (pp. 133–165). Princeton, NJ: Princeton University Press.
- Sorensen, K. (2011). Chilean Print Media and Human Rights: Mainstream Silence versus Satirical Subversion. *Peace & Change*, 36(3); 400–426.
- Springer, N., Engelmann, I., & Pfaffinger, C. (2015). User comments: motives and inhibitors to write and read. *Information, Communication & Society*, 18(7); 798–815.
- Stone, D.A. (1989). Causal Stories and the Formation of Policy Agendas. *Political Science Quarterly*, 104(2); 281–300.
- Strömbäck, J. & Nord, L.W. (2006). Mismanagement, mistrust and missed opportunities: a study of the 2004 tsunami and Swedish political communication. *Media, Culture & Society*, 28(5); 789–800.
- Stroud, N.J., Scacco, J.M., Muddiman, A. and Curry, A.L. (2015). Changing Deliberative Norms on News Organizations' Facebook Sites. *Journal of Computer-Mediated Communication*, 20; 188–203.
- Su, C. (2012). One earthquake, two tales: narrative analysis of the tenth anniversary coverage of the 921 Earthquake in Taiwan. *Media, Culture & Society*, 34(3); 280–295.
- Sukumaran, A., Vezich, S., McHugh, M., & Nass, C. (2011). Normative influences on thoughtful online participation. In *Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems - CHI '11* (pp. 3401–3410). New York, New York, USA: ACM Press.
- Tankard, J. W. (2001). An empirical approach to the study of media framing. In S. D. Reese, O. H. Gandy, & A. E. Grant (Eds.), *Framing public life: Perspectives of media and our understanding of the social world* (pp. 95–106). Mahwah, NJ: Erlbaum.
- Taylor, S.J. & Bogdan, R. (1998). *Introduction to Qualitative Research Methods* (3rd ed.). New York: Wiley.
- Toepfl, F. & Piwoni, E. (2015). Public Spheres in Interaction: Comment Sections of News Websites as Counterpublic Spaces. *Journal of Communication*, 65; 465–488.
- The Associated Press (2011, August 18). Chile dictatorship victim toll bumped to 40,018. *CBCNews*. Retrieved from <http://www.cbc.ca/news/world/chile-dictatorship-victim-toll-bumped-to-40-018-1.998542>
- The World Bank (2017). The World Bank In Chile. *The World Bank*. Retrieved from <http://www.worldbank.org/en/country/chile>
- Tracy, S. J. (2013). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. Hoboken, NJ: Wiley.

- TV Tropes (n.d.). Useful Notes / Republican Italy. *TV Tropes*. Retrieved from <http://tvtropes.org/pmwiki/pmwiki.php/UsefulNotes/RepublicanItaly>
- UAH (2013). Cuarta Encuesta Estado del Periodismo Nacional 2013. *Escuela de Periodismo Universidad Alberto Hurtado*. Retrieved from <http://periodismo.uahurtado.cl/wp-content/uploads/2013/12/Principales-resultados-Encuesta-Estado-del-Periodismo-Nacional-2013.pdf>
- Useem, M., Kunreuther, H. & Michel-Kerjan, E. (2015). *Leadership Dispatches Chile's Extraordinary Comeback from Disaster*. Stanford: Stanford University Press.
- Univision (2014, April 1). Un fuerte sismo deja seis muertos en Chile. *Univision*. Retrieved from <http://www.univision.com/noticias/noticias-de-latinoamerica/un-fuerte-sismo-deja-seis-muertos-en-chile>
- Wagner, M.W. & Gruszczynski, M. (2016). When Framing Matters: How Partisan and Journalistic Frames Affect Individual Opinions and Party Identification. *Journalism & Communication Monographs*, 18(1), 5–48.
- Wenger, D.E., James, T.F., & Faupel, C.E. (1980). *Disaster beliefs and emergency planning*. Newark, DE: Disaster Research Center.
- Williams, S.E. (2007). Chi-Square Test for Goodness of Fit. In N.J. Salkind (ed.) *Encyclopedia of Measurement and Statistics*, (pp.134–135). Thousand Oaks: Sage.
- Wolfsfeld, G., & Sheaffer, T. (2006). Competing actors and the construction of political news: The contest over waves in Israel. *Political Communication*, 23, 333–54.
- Yang, A. (2012). Understanding the Changing Chinese Media: Through the Lens of Crises. *China Media Research*, 8(2); 63–75.
- Yez, L. (2013) Desafíos éticos de la cobertura televisiva de un hecho traumático. *Cuadernos.Info*, 32; 39–46.

VITA

Magdalena Saldaña holds a B.A. degree in Journalism and a M.A. in Social Research and Development, both from the University of Concepción, Chile. Her research interests include digital media, political communication, public opinion, and Latin American studies. Saldaña has taught courses on digital journalism, Hispanic media, public opinion, and research methods. In 2015 she was awarded the Jesse H. Jones Endowed Centennial Fellowship, one of the most prestigious awards in the Moody College of Communication at the University of Texas at Austin. In addition, she has received a number of important awards in recognition for academic achievement and excellence in journalism education. Saldaña joined the School of Communications at Pontificia Universidad Católica de Chile as an assistant professor in the fall of 2017.

Permanent address (or email): magdalenasaldan@gmail.com

This dissertation was typed by the author.