Framing a Future for Climate Refugees: A Case Study on Media and Discourse Surrounding Hurricanes Irma

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ABSTRACT

Impacts of climate change have begun to displace populations, due to sea-level rise, extreme weather events and drought. There is increasing support that hurricanes in the Atlantic basin, included as a type of extreme weather event, increase in intensity and damages due to climate change. This study uses content analysis and critical discourse analysis to examine media coverage from The New York Times and Wall Street Journal on Hurricane Irma, one of the most severe storms that struck the Caribbean in September 2017. Results showed biased coverage of victims and damages to territories outside of the continental United States. These findings relate discourse from this case study to broader implications and literature on climate refugees.

KEYWORDS

climate change, discourse analysis, media analysis, The New York Times, The Wall Street Journal

INTRODUCTION

Exclusion of environmental and climate related factors in the international refugee convention creates uncertainty over securing the rights of current and future populations displaced by climate change. Under the 1951 Geneva Convention, the United Nations defined refugees as people "who feel obligated to leave their usual place of resident, because their lives, livelihoods and welfare have been placed at serious risk as a result of adverse environmental, ecological or climatic processes and events (Atapattu 2009)." The Refugee Convention is the preeminent document guiding international response to refugees, and all signatories are required to assist refugees (UNHCR n.d.). However, in this definition, there are no provisions for those displaced due to environmental or climate related factors. "Climate refugees" are commonly defined by scholars as people forced to leave their homes due to changes in the environment as a result of climate change; climate drivers are often limited to sea-level rise, extreme weather events, and drought (Biermann and Boas 2010). Climate refugees are projected to number 200-250 million people by the year 2050 (Black et al. 2011). Yet, there is resistance to including environmental factors in the refugee definition, specifically by the two international organizations tasked with addressing refugees: The UN High Commissioner on Refugees (UNHCR) and the International Organization on Migration (IOM). They argue that since these migrants are not officially recognized under the 1951 definition, their inclusion would undermine the existing refugees protected under international law (Hartmann 2010). Instead, UNHCR and IOM advocate for the use of the term "environmentally displaced persons," defined as people "who feel obligated to leave their usual place of resident, because their lives, livelihoods and welfare have been placed at serious risk as a result of adverse environmental, ecological or climatic processes and events (Atapattu 2009)." Though both definitions describe the same phenomena, there is an important distinction. Under the classification of "environmentally displaced persons," these migrants have no international rights under the Refugee Convention that obligate countries to assist them (Atapattu 2009). UNHCR and IOM justify their position by claiming that most climate-related migrants will only be internally displaced (Hartmann 2010). This assumption, and the underlying justification, directly contradicts with other agencies' predictions on the seriousness of future climate refugee flows. Overall, this international policy

framework does not adequately match the reality of climate change impacts on human populations.

Media outlets can frame extreme weather events to indicate national policies and influence agenda setting for displaced persons. During natural disasters, media outlets commonly participate in a process called media agenda-setting, in which events are covered with specific intent of influencing policy (Barnes et al. 2008). Frames describe the discourse and arguments used to describe an issue to encourage a particular interpretation. In the context of climate refugees, scholars have distilled a number of frames based on discourse from the media and policymakers. These frames are a tool to understand how discourse can indicate a country's policy toward climate refugees. For example, the developed world commonly utilizes a frame called the degradation narrative, which posits that climate migration is a form of adaptation and further predicated on a lack of adaptive capacity in the source nation (McLeman and Hunter 2010, Hartmann 2010). According to this logic, if these countries were better equipped to address climate change, they would produce fewer or no climate refugees (McLeman and Hunter 2010). An unfortunate consequence of the degradation narrative is that internal economic and political causes of environmental damage are emphasized, rather than global contributors to climate change (Hartmann 2010). The degradation narrative outlines the relationship between discourse and policy. Ultimately, climate refugee discourse is reflected in national responses to people displaced by extreme weather events.

Victims of extreme weather events are already experiencing the consequences of inadequate international legislation and reflect inequity in the current system. Since 2008, an annual average of 21.5 million people are forced to flee their homes due to sudden onset natural hazards exacerbated (Leighton and Byrne 2017). Climate change has increased the intensity and severity of these natural disasters and extreme weather events (Bedarff and Jakobeit 2017). The implications of these policies and associated frames discussed above can be observed and analyzed in an emerging case: Hurricanes Irma and Maria, which occurred in the Caribbean in September 2017. International governments and media outlets discussion of and response to climate refugees in this context provides a useful case for understanding their country policies on climate refugees more generally. There are a variety of stakeholders in the affected region, including independent sovereign nations and overseas territories of the UK, US, France and the Netherlands (John 2017). Affected areas include Antigua and Barbuda, Saint Martin, Saint

Barthelemy, Anguilla, Saint Kitts and Nevis, Virgin Islands, Puerto Rico, Dominican Republic, Haiti, Turks and Caicos, and the eastern United States (John 2017). Damage has been severe, pushing many residents out of their developing countries, putting significant burden on their governments to deal with this crisis. With various stakeholders involved, this case presents a compelling policy arena to observe how national statements and media coverage discuss victims of the hurricanes. Because displacement was caused by extreme weather events, this case gives a clear example of how climate refugees fit into the discourse, and exposes the gaps in national policies to address these refugees.

My central research question is: *how does discourse in national media coverage of Hurricane Irma victims differ by country?* In addressing this question, I hope to also address the following sub-questions: *a) How does climate change fit into this discourse?* and *b) How does portrayal of response contribute to discourse on climate refugees?* My data collection objectives were to accumulate policy statements and newspaper articles to form an idea of the national perspectives of each stakeholder. I used this this data perform content analysis and critical discourse analysis to identify policy frames and patterns.

Conceptualizing Climate Refugees

Overall, there are two fundamental ways to conceptualize climate refugees: maximalist and minimalist viewpoints. The maximalist view focuses on the social impacts of climate change, based on scientific projections (Bettini 2014). With projected climate change scenarios, maximalists produce estimates on future climate refugee populations, predicting 200-250 million climate refugees by 2050 (Black et al. 2011). In the maximalist view, climate refugees are frames as a growing security concern, due to the quantity of displacement or the influence of potential resource conflicts (Reuveny 2007, Bettini 2014). These projections are utilized as an argument to motivate political change to decarbonize the economy or pursue other mitigation policies (Felli 2013). In this persuasive framework, forced migration is positioned as a failure of mitigation and adaptation policy (Felli 2013).

On the other hand, minimalists contextualize climate change as one of many push factors that contribute to migration. This framework pays particular attention to the role of economic

development and adaptation in the issue of climate migration, rather than emphasizing environmental changes (Felli 2013). Not only do minimalists consider other factors like social, economic, or political circumstances, but they also take broader global trends into account such as the effects of globalization and development in the global South (Bettini 2014). Minimalists favor the term "climate migrant" over "climate refugee", because it is more inclusive of the other factors that influence an individual's movement (Felli 2013).

These two frameworks underlie the discussion of climate refugees in academic and policy arenas, and contribute to the dominant discourse in policy arenas. When climate refugees first entered the international debate, the discourse was dominated by maximalist projections that warned of a global security crisis (Bettini 2014). This favored policies aimed toward mitigation and climate refugee protections to prepare for displacement. However, the dominant discourse has shifted toward a minimalist framework concerned with human security, or an approach to ensure individual protection against climate change (Bettini 2014). Minimalism emerged as a reaction to maximalist assertions; minimalists criticized the fact that projected climate refugees was deterministic, meaning that displacement is unavoidable, and did not consider adaptation seriously enough (Felli 2013) Therefore, "climate migration" is the favored term, oriented as a form of adaptation to the failure of climate change mitigation (Felli 2013). However, this has many downsides as a primary policy choice. By replacing "refugee" with "migrant", it emphasizes that individuals have a choice to leave. Migration due to climate change is then predicated on a lack of adaptive capacity in a nation (Hartmann 2010). Hence, economic and political shortcomings in source nations are emphasized, rather than global contribution to climate change (Hartmann 2010). Before, "climate refugees" emphasized that migration was forced as a result of climate change, and therefore was an issue of reparative justice from industrialized countries that produced the risk of climate change through greenhouse gas emissions (Felli 2013). In the shift to "climate migrant", the burden of adaptation falls on the victims of climate change rather than the producers of risk (Biermann and Boas 2010).

The shift in dominant discourse is translated into policy arenas, most notably through the two largest international bodies tasked with addressing migration and refugees: the United Nations High Commissioner on Refugees (UNHCR) and the International Organization of Migration (IOM). Both UNHCR and IOM have drafted international reports stressing vulnerability as a key contributor to climate migration. Vulnerability is commonly defined as an

individual's ability to adapt to climate change based on economic and political circumstances (Felli 2013). By focusing on vulnerability, these agencies place the burden of adaptation on climate refugees; considering that most refugees are projected to come from the developing world, this discourse places blame on economic and political failures of these countries, rather than the environmental risks that they face (Hartmann 2010). Climate migration then becomes an individual responsibility, rather than an issue addressed with collective political action (Felli 2013). Overall, this shift to "climate migrants" is not popular with all states, and often neglects the interest of affected states.

In a 2010 study, Karen McNamara presented the counter-dominant discourse by interviewing small island developing nations. At a United Nations conference, McNamara conducted a series of interviews with UN ambassadors from these nations. Like minimalists, these ambassadors contest the use of "climate refugees" in a deterministic context; in maximalist discourse, climate refugees are framed as "helpless victims of climate change who are in urgent need of foreign assistance" (Felli 2013). Therefore, adaptation alternatives to migration are underrepresented (McNamara and Gibson 2009). These ambassadors are also wary that maximalist projections of climate refugees may be a tool for environmental lobbyists in developed nations to further climate change mitigation policy in their home countries (Farbotko 2010). However where they depart from minimalists is on reparative justice; small island developing states believe that developed countries should still bear responsibility for climate change, since they are producers of risk from greenhouse gas emissions (Felli 2013). If reparative justice is left out of the dominant discourse, the transition to "climate migration" leaves developing countries vulnerable to climate change if displaced people in the future do not have access to refugee status. Hence, the dominant discourse focused on "climate migration" still does not encompass the interests and concerns of all states, especially those most affected by climate change.

Climate Change and Hurricanes (tropical cyclones)

Though there is still disagreement on the link between climate change and hurricane intensity, scientists agree that the damage from hurricanes will continually increase in the future due to socioeconomic trends. There are two central types of risk to consider when discussing

hurricanes: event risk and outcome risk (Pielke et al. 2005). Event risk refers to the occurrence of the hurricane itself, particularly the frequency and intensity of the storms (Pielke et al. 2005). In the scientific community, there is still some uncertainty over whether climate change causes more intense hurricanes, but there has been an increasing number of studies that suggest that there is (Pielke et al. 2005, Mann and Emanuel 2006). Since there is a limited body of historical data for hurricane intensity, it is difficult to establish a causal link. Additionally, there as only been ~0.2*C of warming over the past 50 years, so it is difficult to observe changes in event risk due to climate change (Pielke et al. 2005). Hurricane intensity is typically measured in terms of average wind speeds and power dissipation. The theoretical link proposes that increase sea surface temperatures increases the thermodynamic potential intensity of the storm (Pielke et al. 2005). With more advanced climate modeling, there are more studies that suggest a link between climate change and hurricane intensity. One study concludes that greenhouse warming will cause an average of 2-11% more intense hurricanes by 2100 (Knutson et al. 2010). The greatest increase is predicted to be in the Atlantic Ocean off of the coast of the United States. Emmanuel analyzed existing data and observed a near doubling of power dissipation over a 50 year record in the North Atlantic and North Pacific (Emanuel 2005). Additionally, another dynamic high-resolution model concluded that anthropogenic warming is likely responsible for increased hurricane intensity in the Atlantic (Mann and Emanuel 2006).

However, there is consensus on the outcome risk, moreover the increasing damages that hurricanes can cause due to social and economic trends (Pielke et al. 2005). This pertains to outcome risk, which measures the socioeconomic impact of a hurricane, including damage to infrastructure and economic losses (Pielke et al. 2005). In past decades, populations have moved toward coasts, and the value of infrastructure has increased substantially (Knutson et al. 2010). Therefore, the outcome risk increases substantially, even if event risk does not. By 2050, IPCC predicts that for each dollar of hurricane damage, there will be $22-$60 in additional costs due to these socioeconomic trends (Pielke et al. 2005). Overall, hurricanes and climate change pose a significant threat to developing nations, particularly those affected by hurricanes in the Atlantic Ocean.

Case study: The Caribbean

With both developed and developing states and various stakeholders, the hurricane damage in the Caribbean encompasses the dynamics of climate refugee. There are multiple states affected by the hurricanes of September 2017, including United States, British, French, and Dutch territories, and sovereign nations:

- US territories: US Virgin Islands, Florida, Puerto Rico

- British territories: Anguilla, British Virgin Islands, Turks and Caicos

- French territories: Saint Martin, Saint Barthelemy

- Dutch territory: Saint Martin

- Sovereign nations: Antigua and Barbuda, Saint Kitts and Nevis, Haiti, the Commonwealth of the Bahamas

These nations were affected by two primary hurricanes, including Hurricane Irma and Maria. On September 6, 2017, Hurricane Irma swept through the Caribbean with wind speeds up to 185 miles per hour ("The Storm Reaches Puerto Rico" 2017). Ten days later, Hurricane Maria reached the Caribbean with maximum sustained wind speeds reaching 160 miles per hour (Ahmed and Semple 2017). The Caribbean has faced significant challenges, including damaged infrastructure and loss of life, that have reduced the governments' capacity to provide for citizens and put strain on developing economies.

Methodology

My study used critical discourse analysis to examine the political and social dynamics surrounding the victims of the hurricanes in the Caribbean. Van Dijk defines critical discourse analysis (CDA) as a study of "the way social power abuse, dominance, and inequality are enacted, reproduced, and resisted by text and talk in the social and political context" (van Dijk 2005). The foundation of CDA is that discourse influences and reflects how a topic is depicted. Therefore, the hegemonic power controls how discourse is produced and the policies that result from these dominant voices. (van Dijk 2005). In the context of the case study, the United States is the hegemonic power, since they are the dominant policy influence and geopolitical power. For this reason, I am studying US media outlets to observe the differing depictions of the victims of the hurricanes.

METHODS

I chose to study the hurricanes in the Caribbean because it presents a microcosm of conflicting stakeholder policies on climate refugees and consequences of extreme weather events. In September 2017, Hurricane Irma made landfall in the Caribbean, causing extensive damage due to flooding and winds in the region. With winds reaching up to 185 miles per hour, Hurricane Irma was one of the strongest hurricanes in the Atlantic (Robles et al. 2017). To gather the articles and data for this study, I created a set of guidelines. First, I selected a variety of newspaper agencies that represent different audiences within the United States. I chose to study the New York Times and the Wall Street Journal because they both have national audiences in the United States; the New York Times had over 130 million monthly readers in December 2017 and the Wall Street Journal reaches 42.4 million readers per month (Nze and Curts n.d., Tran n.d.). To select articles, I performed keyword searches on "Hurricane Irma" and sorted the results by date. I included articles from September 6 to September 16 of 2017 that had content directly relating to the storm. In this query, I did not include articles that were overviews of all newsworthy events and opinion pieces, because op-ed pieces are more representative of a journalist's opinion rather than the broader print audiences. In total, I collected 42 articles from the New York Times and 60 articles from the Wall Street Journal.

My first phase of analysis coded each article by location and topic codes. Affected areas consisted of 4 location codes based on the governing authority: United States (Florida and the Florida Keys), United States territory (Puerto Rico and the US Virgin Islands), European territory (St. Martin, St. Barthelemy, Anguilla, the British Virgin Islands, and Turks and Caicos), and sovereign nations (Cuba, and Antigua and Barbuda). St. Barthelemy is a French territory, and St. Martin is split by both French and Dutch control. The British Virgin Islands, Anguilla, and Turks and Caicos are all territories of the United Kingdom. Additionally, topic codes were broken down into 3 categories: 1) damages and victims, 2) response, and 3) climate change. Articles coded with "damages and victims" contained significant coverage of damage to infrastructure, private property, local economy, and civilian life. This category also included preparation and mitigation measured undertaken that may have limited damages in the area. Next, articles coded under "response" pertained to aid from official government agencies, collective community action, and crime in the period following Hurricane Irma. Finally,

discussion of climate change was coded based on mention of either "climate change", "global warming", or any related consequences such as sea-level rise. Each article could contain multiple location and topic codes if there was substantial coverage, excluding single point references to any category.

In my next phase of analysis, I used a combined method of content analysis and critical discourse analysis to analyze the text itself. I employed the directed approach to context analysis. This method uses predetermined codes to categorize information, and identifies themes and patterns in each category (Hsieh and Shannon 2005). I divided my data into topic categories, then subcategories of the location codes to analyze the patterns of coverage from each source. Then, I conducted a close reading of the text to analyze discursive effects. Discursive effect describes the influence that discourse has on the audience's understanding of a given topic. The overall effect is produced by discursive features of the text, involving elements such as foregrounding and backgrounding, agent-patient relationships, insinuation, and omission. Foregrounding and backgrounding describes which concepts are emphasized through the text, either by placement in the article's body or repetition. Agent-patient relationships describe actors and the consequences or recipients of those actions. Insinuations are suggestions produced by discourse and word choice. Finally, omission entails the purposeful exclusion of actors or concepts (Huckin 1997). I analyzed discursive features represented in pulled quotes from the articles. Finally, I considered the context in which the discourse of the articles is situated. Based on the analysis of the articles, I contextualized the discourse within the context of the broader climate refugee debate. I analyzed how the discourse supported or pushed against perspectives on climate refugees, as well as whether perspectives were consistent with dominant or counter-dominant discourse in the international debate.

RESULTS

I collected a total of 102 articles from both the New York Times (NYT) and the Wall Street Journal (WSJ) for the 10-day period between September 6 and September 16 through the key word search "Hurricane Irma".   42 articles came from the NYT, and 60 articles came from the WSJ.

Initially, I coded the articles into four discourse categories in the first phase of content analysis: (1) damages, (2) victims, (3) climate change, and (4) community response. However, in the process of coding, "damages" and "victims" were difficult to differentiate, so I combined the articles into one category. Articles were also coded into multiple categories if appropriate. Articles were also coded by location, divided into four categories as well: (1) Florida, (2) United States territories, (3) territories of European nations, and (4) sovereign nations. The "Florida" location code includes both continental Florida and the Florida Keys. The "United States territories" location code includes the US Virgin islands and Puerto Rico. The "territories of European nations" location code includes Anguilla, the British Virgin Islands, St. Barthelemy, and St. Martin. Finally, the "sovereign nations" location code includes Antigua and Barbuda, and Cuba.

New York Times Analysis

From September 6 to September 16, I found 42 articles from the New York Times pertaining to Hurricane Irma. In this article set, I chose to omit 4 articles with the cited author as "New York Times" because they just contained an overview of article content from the previous week.

Damages and Victims

In the NYT articles, 23, or 60%, fell into "damages and victims" discourse category. Articles included under the "damages and victims" focused on the impact Hurricane Irma had on public buildings, private property, key infrastructure, local economy and human life.

Florida

Overall, the NYT articles about continental Florida mostly discussed residents' preparation for the storm, damage to key infrastructure, and victims in vulnerable populations. Coverage of the Florida Keys was similar, however with more emphasis on damage to infrastructure since the islands were more affected by the hurricane.

Preparation for the storm. Hurricane Irma reached Florida on September 10th, 4 days after making landfall in the Caribbean. As a result, residents and officials had additional time to prepare for the storm and mobilize evacuation efforts. The state facilitated evacuation from 29 hospitals, 239 assisted-living facilities and 56 other health care facilities in preparation for the storm (Santora et al. 2017). Officials on both the local and state levels were united in their messages: evacuate the most vulnerable areas if possible, but ration supplies so there isn't a shortage for other residents. Below are a few examples of statements from officials:

> *"I beg them please leave Miami Beach; you don't want to be here."* - Mayor
> Philip Levine of Miami Beach (Alvarez and Santora 2017)
> *"I cannot stress this enough. Do not ignore evacuation orders. We can rebuild*
> *your home but we cannot rebuild your life."* – Florida Governor Rick Scott
> (Robles et al. 2017b)

The resulting evacuation was called the largest in Florida history, causing traffic and gas shortages in the southern part of the state and moving north. Florida officials declared a state of emergency, limiting gas price increases that are considered "abusive" to people in need (Alvarez and Santora 2017). On September 9th, prior to the storm's arrival in Florida, the state opened more than 390 shelters in fortified buildings and public schools receiving more than 72,000 residents, with plans to open additional locations (Santora et al. 2017). In anticipation, the state also mobilized over 7,000 troops of the Florida National Guard to aid in search and rescue and debris removal after the storm (Santora et al. 2017).

Aside from evacuation, the NYT also highlighted residents who chose to stay in their homes. Through personal accounts, some residents chose to stay, faced with the difficult decision to leave their homes and belongings. Residents were prepared with hurricane resistant shutters and two weeks of supplies (Alvarez and Santora 2017). In advance of the storm, Florida saw a "a run on basic goods, with shelves picked clean of water and many gas stations left with only fumes" (Santora et al. 2017). Though there was a shortage of goods, there were no reports of crime.

The NYT's picture of Florida's preparation was one of clear messaging and ample measures by state and local officials. Residents were positively portrayed as well prepared, both in evacuation and resilience measures for those who stayed.

Infrastructure damage. Damage to key infrastructure was centered on the loss of electricity as a result of the storm. At the peak, 62% of Floridians were without power (Bidgood and Yee 2017). The NYT depicted residents gathered around local businesses with electricity, trying to get reprieve from the heat and gain access to wireless Internet. However, the greatest concern was about power outages to medical facilities, including hospitals and nursing homes.

> *"The most serious consequences of the outages appeared to be unfolding at hospitals and nursing homes. As of Monday evening, 54 hospitals were operating on backup generators, according to data reported to the Florida Department of Health"* (Bidgood and Yee 2017).

On September 11th, one day after Hurricane Irma reached Florida, 26 hospitals remained closed, and 54 were operating on generators, still struggling with intermittent power outages (Bidgood et al. 2017b). However, the NYT showed Florida officials prioritizing power restoration to these facilities.

The NYT emphasized response measures and adaptation preparations undertaken by the Florida government and utilities providers though. The state of Florida has codes in place that require these facilities to have emergency procedures for evacuation and electricity, however suggested that enforcement has been inconsistent (Bidgood and Yee 2017). One article was entirely dedicated to Florida Power & Light, a major utilities provider in the state, highlighting their response, challenges and storm preparation investments over the past decade. In the wake of the hurricane, the company deployed 16,000 workers, some from other utilities, to assess damage and repair infrastructure. The company also utilized drones to assess damages throughout the state. Since 2006, Florida Power & Light invested over $3 billion in adaptation, replacing wooden poles with concrete, and installing flood monitors at over 223 locations on the power grid (Plumer 2017b). This article featured key challenges to restoring service as well,

including debris removal, water damage to the grid, and safety precautions that cause delays (Plumer 2017b).

However, one article did show criticism of Florida's infrastructure, and the vulnerabilities to storm surges and flooding. The local branch of the American Society of Civil Engineers poorly rates water and sewage treatment facilities, including the dike. Though the infrastructure was poorly rated at a "C" grade, it still remained above the national average of a "D-". The article still mentioned resiliency improvements made by the state though, including special values at sewage treatment facilities to reduce flooding, and preemptive drainage of the dike to limit flooding to neighboring areas (Fountain 2017b).

Overall, discourse in the NYT shows Floridians struggling with widespread electricity outages, but not in the absence of preventative measures and positive official action to resolve the issue. Though there is criticism of some infrastructure, the state is shown as an active proponent of adaptation measures.

Vulnerable communities. The NYT used terms like "desolation" and "crippling damage" to describe the aftermath of Hurricane Irma in Florida (Bidgood et al. 2017, Robles 2017). However, continental Florida was "spared most houses and lives" (Bidgood and Yee 2017). The region experienced flooding, damages to private property, and impassable roads, but still the damages were "as not as bad as the forecast" (Fountain and Plumer 2018). The relative resiliency of the region was partially attributed to adaptation measures; prior to Hurricane Irma's arrival, private homes, especially along the Florida coast, were built or retrofitted to be more storm resilient (Santora et al. 2017).

Most damages were afflicted in the Florida Keys and communities of mobile homes on both continental Florida and the Keys. Because the Keys are a string of islands, difficulties with transportation logistics made populations more vulnerable to the storm. In the Keys, some areas sustained up to 7 feet of flooding putting some homes entirely underwater (Robles et al. 2017, Fountain and Plumer 2018). The NYT interviewed Kris Mills, a 38-year-old disabled veteran living in the Florida Keys. Mills was quoted, "There's nothing left for us. Everything that wasn't packed in my truck is gone. We lost it all" (Robles 2017). Similarly, winds and flooding caused significant damages to mobile homes; one article observed a "community of mobile homes was in ruins" (Robles 2017).

United States Territories

Though Hurricane Irma did not make landfall in Puerto Rico and the US Virgin Islands, winds, rain and flooding still impacted the islands. In the NYT, coverage of damages and victims focused on economic crisis prior to Irma, putting inadequate maintenance and local officials to blame for infrastructure damage.

Economic crisis. Puerto Rico's financial struggles were foregrounded in the discussion of damage caused by Hurricane Irma. The first article covering Puerto Rico on September 6th begins with this quote:

> *"Puerto Ricans have ample experience with hurricanes, but the storm approaching on Wednesday brought an added level of anxiety. The island's dire financial straits have left essential public works, from power plants to retaining walls, weakened by years of scrimping on maintenance"* (Walsh 2017).

In the same article, the discussion of Puerto Rico's economy precedes any coverage of Hurricane Irma and the impact on residents. Before the hurricane hit, the island had $123 billion in bond debt and unfunded pension obligations, leading them to seek bankruptcy protection in May of 2017 (Walsh 2017).

> *"Relations between the board and the elected government of Gov. Ricardo Rosselló were contentious even before Hurricane Irma, with the governor first agreeing to a five-year austerity plan, then reversing course and threatening to go to prison rather than accepting the entire package. In particular, the governor has refused to furlough government workers, and to reduce the pensions of retired government employees by an average 10 percent. The fiscal oversight board has sued the governor, asking the court to order him to carry out the entire austerity plan"* (Walsh 2017).

By foregrounding this information prior to any discussion of Hurricane Irma, the NYT has immediately contextualized damages as a result of economic crisis, not the storm itself. The agent-patient relationships are also constructed to put the governor at fault; the governor is the main actor at fault for these economic missteps, providing no context for broader dynamics like the state's economy or the relations with the federal government. There is similar emphasis on economic downturn in the US Virgin Islands that has greater per-capita debt than Puerto Rico (Walsh 2017).

Power outages preceding the storm's arrival were then contextualized in the context of blame on mismanagement by officials. Approximately 300,000 residents were without power in the early morning of September 6th before Hurricane Irma; the NYT blamed inadequate tree maintenance and Prepa, the publicly owned utility, whose power plants are under maintained (Walsh 2017). After the hurricane hit, over one million residents were without electricity, which the NYT described "has been long coming" (Robles et al. 2017). A quoted interview with Governor Rosselló provided the only counter-perspective, that a lack of investment on Puerto Rico's infrastructure over a decade made the island vulnerable to damage (Ferré-Sadurní 2017b).

European territories

European territories in the Caribbean, especially St. Martin and St. Barthelemy, sustained some of the worst damages from Hurricane Irma after it made landfall on September 6th. The NYT coverage of damages and victims had two prominent characteristics: extent of destruction to infrastructure and tourism losses.

Infrastructure destruction. St. Martin and St. Barthelemy, French and Dutch held territories, suffered extensive damage from the storm, which the NYT covered extensively. The scene in St. Barthelemy was called a "spectacle of desolation", referencing the sparse power and water services, and destroyed buildings and roads (Robles et al. 2017). An estimated 80%-90% of the structures on St. Barthelemy were destroyed (Ahmed 2017b). Similarly, 95% of the structures in St. Martin were destroyed; aerial footage showed "streets inundated with water and homes devastated by winds" (Robles et al. 2017). Victims, including both residents and tourists, were

portrayed as "stranded", as a result of damage to communication infrastructure and roads (Ahmed 2017b).

British territories of Anguilla and the British Virgin Islands were also in Irma's direct path. The situation in Anguilla was described as "huge devastation" by the island's attorney general John McKendrick (Robles et al. 2017). Approximately 90% of the homes in Anguilla were damaged, and locals said no building was left untouched by Irma (Joseph et al. 2017). Early estimates put the death toll on the British Virgin Islands at five (Ahmed 2017b).

However, the situation in the Caribbean was also contextualized as a warning sign for Floridians as the United States prepared for Hurricane Irma. There was little word on the islands' preparation for the hurricane's arrival, instead signaling the severity of possible consequences for Florida.

Tourism losses. The rebuilding efforts took an additional focus on tourism losses in the storm. Five days after Hurricane Irma made landfall in the Caribbean, an article from the NYT discussed St. Barthelemy as follows:

> *"Those who live on St. Barthélemy — working in its restaurants, building its homes, fishing its seas — know there is nothing without it. And Hurricane Irma, which plowed through this part of the Caribbean, killing more than two dozen people and seriously damaging or destroying the majority of structures on some islands, also struck a devastating blow to the industry so many rely on"* (Ahmed and Semple 2017a).

Neighboring St. Martin, another French territory, is also reliant on tourism. Approximately 90% of the country's economy relies indirectly or directly on the tourism industry (Ahmed and Semple 2017a). Images of damage morphed into a tourism-focused lens, replacing depictions of infrastructure damage with leveled hotels and eroded beaches (Ahmed and Semple 2017a). One local perspective from the British Virgin Islands provided this perspective, "While the islands are known as playgrounds for the wealthy, [he said] there are many residents who survive there on modest incomes from cleaning boats, serving food and working in shops" (Ahmed and Semple 2017a). This contextualization of tourism damage in

local residents' livelihoods and futures is a much needed perspective, however, it is placed in the background at the end of an article entitled "In the Caribbean Rebuilding Nations – and the Tourism Industry" (Ahmed and Semple 2017a).

Sovereign Nations

A similar depiction of devastation and tourism concerns characterizes the NYT coverage of sovereign nations in the region, including Antigua and Barbuda, Cuba and the Bahamas.

Infrastructure destruction. On the paired island nation of Antigua and Barbuda, 95% of the structures on one island were destroyed (Robles et al. 2017). Half of the population on Barbuda was homeless, a result of the "leaving a trail of chaos, wreckage and flooding from Barbuda to Puerto Rico" (Robles et al. 2017).

Though the damages were "not as cataclysmic" in Cuba, images of homes and warehouses with roofs ripped off were still displayed (Ahmed 2017b). Unlike Antigua and Barbuda though, the coverage of Cuba showed a more proactive approach to preparation.

> *"Around 700,000 people in eastern Cuba were evacuated as Hurricane Irma*
> *passed. In more isolated, rural areas, the authorities encouraged residents to*
> *shelter in caves, which have been fitted with lighting, food, water and medical*
> *personnel"* (Joseph et al. 2017).

In Cuba, residents and officials are shown as active participants in preparation and evacuation, rather than passive victims of the storm.

Similar to European nations though, the images of destruction in early NYT articles are contextualized as warnings for Floridians to evacuate.

> *"Watching Hurricane Irma maraud across Barbuda and Anguilla, residents of*
> *Florida and others who found themselves on the wrong side of the forecast were*
> *hastening to get out of the way"* (Robles et al. 2017).

By placing this in the foreground, it puts the importance of damages not on the losses and hardships for residents, but the utility of the destruction for Floridians.

Tourism losses. In the Caribbean region, tourism provides over 2.3 million jobs overall (Ahmed and Semple 2017a).   When describing victim experience of the storm, tourism re-contextualizes losses.

> *"Barbuda, with about 100 hotel rooms, has been a small contributor to the region's overall tourism economy. But the businesspeople and workers who have depended on that trickle of tourists now face an uncertain future... In Cuba, the long-term implications could be even worse. The hardest-hit parts of the islands contain a significant share of its tourist infrastructure and bring in precious foreign currency for the communist nation"* (Ahmed and Semple 2017a).

Though Barbuda sustained far more infrastructure and building damage than Cuba, Cuba is framed with worse long-term implications because of their tourism losses, rather than actual damage caused by the storm. Furthermore, the hardest-hit parts of the island are defined in term of tourism losses, rather than residents' personal losses of homes and property.

Response

18 articles from the NYT were coded with the topic "response", amounting to 43% of the articles.   Response includes community action, official recovery efforts, and crime after Hurricane Irma hit the territory.   Below, I will discuss the most common characteristics of response by location.

Florida

NYT coverage of Florida's response was mostly positive official action. On September 11th, police rescues were in full swing, the North Miami Beach Police Department saved a mother and her 4-month-old baby from a flooding residence. Other officers saved a family of

four from a car stranded in a flooded ditch, and another emergency dispatch operator helped deliver a baby over the phone when paramedics couldn't reach a mother in Miami (Victor 2017). Additionally, state officials warned residents of the dangers of returning home and necessary safety precautions. Emergency responders in the most impacted areas of Florida were also fielding calls for rescues. Once the immediate emergencies decreased, officers transitioned to "well-being checks", where police officers followed-up on concerns about friends and relatives who had not been heard from since Irma hit (Bidgood et al. 2017b). The NYT also showed crews working to clear debris, restore power and repair public transportation systems (Bidgood et al. 2017). Floridian residents also received the Los Angeles-based search and rescue teams, named California Task Force 1, with gratitude and relief. Four units were diverted from Houston, and set up a staging area to direct and carry out rescue efforts in Orlando (McPhate 2017).

The President and his administration also received praise for their response in Florida. As Hurricane Irma approached Florida, Trump's cabinet posted a video of their meeting at Camp David where they were remotely monitoring the storm. President Trump "expressed confidence" that FEMA officials had the prowess and resources to give aid to Florida (Shear 2017). Governor Scott "praised the federal government for its swift response to the storm. Officials from the military and the Coast Guard were "constantly calling" and asking what resources they could provide to help the state, he said" (Cochrane and Landler 2017). Trump visited badly hit parts of Florida, including a mobile home park, to hand out food and offer some encouraging words to residents. Most of the residents had voted for Trump in the recent election, so his appearance was well received (Cochrane and Landler 2017).

United States Territories

The NYT's depiction of response in US territories consisted of equal coverage of 3 topics: mixed reaction to federal support, community action, and crime.

Reactions to federal support. On September 6th, Trump declared a state of emergency in Puerto Rico and the US Virgin Islands, which allowed FEMA to deploy personnel and appropriate resources, and entails that the federal government will cover 75% of the costs for

public safety services and clearing debris (Ferré-Sadurní 2017b). Five days after the storm, the US government mobilized aid, deploying an aircraft carrier off of St. Croix and nearly 5,000 American military service members (Ferré-Sadurní 2017c). US forces additionally airlifted 1,200 American citizens from various islands to Puerto Rico (Ferré-Sadurní 2017d). However, the intermediate time between the storm strike and official action, residents complained that their suffering was ignored by the federal government:

> *"The government is treating us terrible," said Ureen Smith, 55, who lived next to*
> *a building in which one of the deaths occurred. "Locals are mad they're not*
> *hearing talk about St. Thomas"* (Ferré-Sadurní 2017c).

These two conflicting narratives are reflected in different types of discourse. Portrayal of positive official action was told through the article's authors throughout the body of the articles. On the other hand, criticism of the federal and local governments was told through personal accounts, specifically quotes from residents. This juxtaposition creates a divide between the normative discourse, and the experiential opinions of the residents of Puerto Rico and the US Virgin Islands.

Community action. Puerto Rico had spontaneous, community-led aid efforts to aid neighboring islands in the Caribbean. Hundreds of volunteers filled 4 shipping containers with donated supplies from Puerto Rican residents. Civilian boaters also rescued people off of neighboring islands, including the British Virgin Islands and St. Martin. Puerto Ricans became aware of the destruction they avoided since Hurricane Irma did not make direct landfall on the island: "As displaced islanders began to trickle in to Puerto Rico in the storm's wake, so did their stories of the wreckage they had fled" (Ferré-Sadurní 2017d). A resident had the following comments to explain the actions of the Puerto Rican community:

> *"We've enjoyed the beauty and the fun of those islands," said Martita Rivera,*
> *who has vacationed in the islands for 25 years. "We only saw the need to say,*
> *'We're here for you' "* (Ferré-Sadurní 2017d).

The stories of community action were foregrounded in the article entitled, "Spared Irma's Worst, Puerto Ricans Sail to Virgin Islanders' Aid". Through this piece, the NYT counters its own depiction of Puerto Ricans helpless to the damages from the storm and widespread power outages. It shows the community helping their neighbors in the Caribbean.

Crime. The NYT coverage of the US Virgin Islands focused on resident accounts of looting. Governor Mapp established a 36 hour curfew in anticipation of the storm to reduce the risk of injuries and crime; however, in the post-storm response, the curfew was loosely enforced (Walsh 2017). Some accounts of looting included:

"Reports that looters were acting with impunity circulated on social media, and one broadly-shared story about guns being stolen from a Customs building in St. John was quickly denied by the authorities. But the situation was not helped by the fact that 70 percent of the island's police force had their homes damaged or destroyed, according to the governor" (Ferré-Sadurní 2017c).

These statements were further supported by complaints from residents. Many said they witnessed local shops looted for jewelry and electronics, extending past the immediate goods for survival (Ferré-Sadurní 2017c).

European territories

The NYT contrasts the experience on St. Martin with British territories. Accounts of crime and poor official response were especially prominent in St. Martin. One day after the storm made landfall in St. Martin, an article describes "looters were picking through the remains, sometimes in view of police officers who stood idly by" (Robles et al. 2017c). To build more official presence, "Additional police arrived on the Dutch side of St. Martin from Curacao to help maintain public order, after reports of people taking groceries from stores in some parts of the island" (Joseph et al. 2017). By choosing to frame this issue as a threat to public order, the NYT insinuates that people taking groceries are a major threat to law and order.

Accounts escalated in days following the storm. Especially in St. Martin, where supplies and aid was scarce, the situation was described as follows:

"Residents of St. Martin, and elsewhere in the region, spoke about a general

disintegration of law and order as survivors struggled in the face of severe food

and water shortages, and the absence of electricity and phone service" (Ahmed

and Semple 2017b).

However, the NYT moves past the picture of desperation, as locals are portrayed looting alcohol, jewelry and luxury items (Ahmed and Semple 2017b). With both Dutch and French troop deployed, authorities had overcome the "lawlessness that prevailed in the first days after the storm… [which] shattered the image many residents had of their island" (Ahmed 2017a). Crime, ranging from fights over food and water to looting local businesses of non-essential items, was placed in the foreground of the discussion since the day after the storm, contextualizing all subsequent actions in the absence of order on St. Martin. Residents are portrayed as complicit with crime, through terms that imply widespread participation in crime such as "lawlessness that prevailed" or "general disintegration of law and order" (Ahmed 2017a, Ahmed and Semple 2017b).

Lawlessness in St. Martin was directly contrasted with British territories, including Anguilla, Turks and Caicos, and the Virgin Islands. The NYT articles are centered on positive community response and minor crimes over food and water. On September 15th, 10 days after Hurricane Irma made landfall in British territories, many residents accused the British government for being sluggish to provide aid. To compensate, "residents of the British Virgin Islands vowed resilience, taking it upon themselves to restore a sense of normalcy in the battered archipelago" (Ferré-Sadurní 2017a). In the absence of official action, residents cleared debris, organized food drives, and established rules of conduct. When the British government stepped in, they airlifted aid and announced they would spend 57 million pounds for relief and rebuilding efforts (Ferré-Sadurní 2017a). In contrast to St. Martin, crime was set in the background, with little emphasis placed on it. The only mention was as follows:

"Supermarkets and electronics stores were looted in the two days after the

hurricane, Mark Vanterpool, the minister of communications and works, said in

an interview. About 168 inmates, most serving minor criminal sentences, escaped

after the hurricane damaged the territory's prison on Tortola" (Ferré-Sadurní
2017a).

Through this description, crime is framed as an immediate reaction to the storm, limited to only two days after Irma. Additionally, inmate escape was a fault of the hurricane, not residents or poor maintenance of the structures. Overall, the NYT showed response in British territories much more positively than in St. Martin.

Sovereign nations

Articles with the location code for "sovereign nation" did a shallow discussion of response. The limited coverage focused on Cuba, and the positive actions undertaken by officials:

"The Cuban government immediately began relief efforts, deploying security
forces in large numbers to the hardest-hit areas, along with convoys of trucks
carrying food and heavy equipment to help remove debris" (Ahmed and Semple
2017b).

Their immediate response was characterized as "a well-oiled machine", and received praise from residents. The most pronounced takeaway is the contrast with the response of European nations. Unlike the French, Dutch and English governments, Cuban officials had control over the situation, and was able to provide adequate aid.

Climate Change

A total of 6 articles in the NYT mention or discuss climate change, amounting to 14% of my sample. In regard to climate science, the NYT reflects the nuances of the links between climate change and hurricane formation in the Atlantic basin also covered in the literature review. The most notable text references that temperature rise will increase the average annual

precipitation and sea-level rise will create a higher baseline for storm surges during hurricanes (Fountain 2017a).

> *"According to Thomas Knutson, a research meteorologist at the National Oceanic and Atmospheric Administration, current climate models suggest that a rise in global temperatures could potentially lead to fewer hurricanes in the Atlantic basin, but those that do form would be more intense, thanks to warmer water near the ocean surface, and bring heavier rainfall because of increased moisture in the air"* (Plumer 2017c).

The inclusion of Knutson's research it supplements the climate change argument, even though the scientific community does have mixed research on the connection to hurricanes because of limited data. By including Knutson's perspective, it supports a progressive view of climate science.

The discussion of climate change is not limited to climate science either; the NYT contextualizes the science in human impacts as well. The Congressional Budget Office estimated that costs of hurricanes will increase by 40% by 2075, and half of this increase is attributed to "global warming and sea-level rise" (Plumer 2017a).

On a policy level, the Times shows a disconnect between federal and local officials. FEMA director Scott Pruitt said at a national press conferences that it was insensitive to discuss climate change in the wake of Hurricane Irma. He was quoted saying, "To have any kind of focus on the cause and effect of the storm versus helping people, or actually facing the effect of the storm, is misplaced. To use time and effort to address it at this point is very, very insensitive to this people in Florida" (Friedman 2017). However, the Times provides a local perspective that directly contradicts this. Republic Mayor of Miami, Tomás Regalado, responded to national officials, "This is the time to talk about climate change. This is the time that the president and the E.P.A. and whoever makes decisions needs to talk about climate change. If this isn't climate change, I don't know what is. This is a truly, truly poster child for what is to come" (Friedman 2017). Similarly, Leonard Berry and Ben Kirtman, two climate scientists from universities in Florida, voiced their support for the discussion of climate change in this setting. By displaying these conflicting viewpoints, the NYT undercuts the normative

discourse on climate change in America, and presents a progressive view supplemented with climate science.

The Wall Street Journal

My sample of the Wall Street Journal (WSJ) has 60 articles related to the keyword search for "Hurricane Irma". Notably, 10 articles from this article related to Hurricane Irma's impact on the national economy or insurance markets, which could not be coded under any of my topic areas.

Damages and Victims

Articles pertaining to "damages and victims" from the WSJ were coded with the same criteria as the NYT.

Florida

The WSJ comprehensively covered residents' and officials' preparation for the storm, and risk factors for damages in Florida. Damages after the storm were framed primarily in terms of utilities and economic losses.

Preparation for the storm.   In the days before Irma's arrival in Florida, the WSJ showed residents heeding evacuation orders or actively gathering supplies to wait out the storm in their homes. On September 7th, Miami officials ordered evacuations for the area containing 650,000 people (Kamp et al. 2017b). In total, evacuation orders were issued to over 6.5 million people in Florida in anticipation of the storm (Campo-Flores et al. 2017a). The WSJ emphasized concerns over gas shortages in the state, since Florida itself does not produce any gas within the state. However, Governor Scott is shown actively organizing fuel deliveries at ports along Florida's southern coasts, and suspending driving limits for trucks (Sider 2017). On the other hand, those who chose to stay in Florida actively gathered supplies, including groceries and sand bags; over 11,000 free sand bags were distributed to residents in Miami (Kamp et al. 2017a). Across the

state, over 77,000 people were held in more than 450 shelters that opened (Campo-Flores et al. 2017a). In this coverage, the WSJ frames Floridians as active participants in preparation measures for the storm, led by local and state officials giving clear instructions and warnings.

The WSJ also analyzed Florida's vulnerability to the storm, quantifying the potential economic losses and mitigation measures put in place since Hurricane Andrew struck 25 years prior. In 2002, the state adopted new building codes to make both homes and commercial buildings more resistant to hurricanes. Some measures include impact resistant windows and stronger roof fasteners (Campo-Flores et al. 2017b). However, large areas were still vulnerable to the hurricane because of the rapid growth along the coast of Florida. Economic analysts made the following reports:

> *"Last week, catastrophe modelers said a major hurricane directly hitting Miami*
> *could cause more than $100 billion in insured losses. While the insured losses*
> *could still reach the tens of billions, the worst-case scenarios likely have been*
> *avoided, said Karen Clark, chief executive of the modeling company bearing her*
> *name*" (Kusisto and Friedman 2017).

However, there is little discussion as to the impact on the individual economic livelihoods of residents. These economic losses are framed in terms of the region's economy as a whole, or for insurers. The WSJ's coverage detracts from individuals' vulnerabilities to the storm, and instead voices concerns about the market.

Damages to utilities and economy. Similar to the NYT, the WSJ emphasized damage to utilities' infrastructure and power outages in the state. However, the WSJ not only covered Florida Power and Light, but also its competitors Duke Energy Corps and Tampa Electric. On the day that Hurricane Irma struck, 6.7 million Floridians were without power (Ailworth 2017b). Resiliency improvement measures are highlighted though, citing the sector's proactive perspective to hurricane protection:

> *"The company [Florida Power and Light] and its power-providing peers in*
> *Florida have spent billions of dollars over the last several years upgrading their*

technology and infrastructure to better handle storms. FPL has spent $3 billion
since its system was slammed by seven hurricanes in 2004 and 2005.
Improvements include replacing wooden poles and transmission structures with
concrete ones, installing real-time water monitors to alert the utility to flooding at
223 substations susceptible to storm surge, using smart meters to identify outages
more quickly and automated switching technology to reroute around trouble
spots" (Ailworth 2017a).

By emphasizing these adaptation measures, the WSJ portrays utility providers positively, since they show a willingness to invest in maintaining and improving infrastructure. Additionally, the 3 utilities providers are shown mobilizing over 31,000 employees to repair damages and restore power (Ailworth 2017a).

In the days following the storm, the WSJ surveyed the economic losses in Florida and the Florida Keys. The WSJ highlighted that physically and economically vulnerable populations bore the heaviest burden in regard to individual residents. The physically vulnerable Florida Keys suffered damages to approximately 25% of the structures on the archipelago (Bauerlein et al. 2017). Additionally, communities of mobile and manufactured homes were most vulnerable because of the storm and lack of insurance. These homes are 50% less likely to be insured (Friedman and Kusisto 2017). However, by emphasizing this point, the WSJ insinuates that these homeowners, mostly low-income or senior residents, are at fault for lacking insurance.

United States Territories

In discourse on Puerto Rico, the WSJ focused on the economic crisis on the island, contributing to the extent of Irma's destruction. Prior to Irma's arrival, the WSJ briefly touched on Puerto Rico's preparation for the storm. Governor Rossello sent a clear message to residents to evacuate to shelters if in vulnerable areas; approximately 4,200 people were in shelters (Kamp et al. 2017a).

However, in the immediate aftermath of the hurricane, the WSJ emphasized the economic downturn in the countries, putting local governments at fault for mismanagement:

> *"The physical damage is another stress on the island's dilapidated and inefficient power infrastructure, already weakened by years of neglect and underinvestment. Puerto Rico's central government and its public power monopoly are both under bankruptcy protection, the culmination of years of over-borrowing and economic stagnation on the island"* (Scurria 2017).

This passage insinuates fault of the Puerto Rican government for the damage sustained in the storm. Word choice such as "weakened by years of neglect and underinvestment" and "culmination of years of over-borrowing" insinuates fault. The coverage adds another layer of tension over the loss of power by highlighting concerns from American investors:

> *"But the recovery effort will unfold against a financial crisis that has pitted Wall Street firms demanding repayment on Puerto Rico's defaulted municipal bonds against its federal financial supervisors, who are trying to minimize obligations to creditors"* (Scurria 2017).

Overall, the WSJ foregrounds the fiscal crisis in Puerto Rico's experience of Hurricane Irma. The WSJ does little to discuss the impacts of the storm on residents, outside of the damage to infrastructure leaving over 1 million people without power. There is no mention of damage to homes or human experiences of the storm. By emphasizing these economic concerns and omitting human impacts, the WSJ insinuates that the primary damages of concern are to the Puerto Rican economy and losses for Wall Street investors.

On the other hand, the WSJ took a more human-interest approach to the US Virgin Islands, but the islands' fiscal challenges were still mentioned. The first article covering the US Virgin Islands only briefly discusses that the territory has similar "fiscal strain" as Puerto Rico, though has not defaulted on obligations (Scurria 2017). In further coverage, the WSJ foregrounds the storm's impact on residents, describing "the storm-battered U.S. Virgin Islands, where thousands of residents, many displaced from homes, face the worst hurricane damage there in decades" (Carlton and Mann 2017). Contrasting the descriptions of the two territories, the WSJ's coverage of Puerto Rico shows how bias can affect public opinion in the wake of a natural disaster and assign blame to impacted states.

European Territories

Damage assessment in European territories was very limited. The WSJ reported that in St. Martin, 95% of the buildings were damaged, and 60% lay uninhabitable after the storm made landfall on September 6th. Damage to key infrastructure cut off access to power, water and gasoline, and also made roads impassable (Althaus 2017a). The French Interior Minister also gave reports that 8 were dead, and 23 injured in both St. Martin and St. Barthelemy (Kamp et al. 2017a). Comments on St. Barthelemy were limited to the death toll. An article also mentioned that damages to both islands would cost France's state-owned insurance company up to $1.4 billion due to losses of homes, vehicles and businesses (Whelan and Dalton 2017). Reports on British territories were even sparser. The WSJ only commented that damage to power infrastructure had severed radio and mobile communications in Turks and Caicos (Althaus and Whelan 2017).

Sovereign Nations

The WSJ focused on two sovereign nations in the Caribbean, Antigua and Barbuda and Cuba. Antigua and Barbuda suffered extensive damage from the storm after it made landfall on September 6th:

> *"Barbuda, famed for its pink sand beaches and several luxury resorts, suffered widespread damage and the death of a toddler. More than 90% of island's buildings suffered extensive damage, officials say"* (Althaus 2017b).

By placing the phrase "famed for its pink sand beaches and several luxury resorts", the WSJ foregrounds impacts on tourism in the discussion of damages. The country's director of emergency response cited poor enforcement of building codes as a "main cause for much of the damage" (Althaus 2017b). Damage incurred also limited communication throughout the nation (Kamp et al. 2017a).

In Cuba, the WSJ covered preparation in advance of Irma's arrival by both residents and officials. Cuban residents pride themselves on being prepared for hurricanes, taking precautions

before locking down in their homes to wait out the storm. Official action was covered as followed:

> *"By Saturday evening, no deaths had been reported in Cuba as a result of the storm. Cuban authorities evacuated as many as a million people across the island, including an estimated 10,000 tourists from the beaches of Cuba's north coast, and set up dozens of shelters. The government even moved people into Cold War-era tunnels dug in anticipation of a U.S. invasion of the Communist nation, according to local media"* (Whelan and Dalton 2017).

In the agent-patient relationship, the WSJ shows Cuban authorities mobilized for effective evacuation and storm preparation measures. This provides a direct contrast to countries where preparatory measures were not covered.

The combination of strong winds, heavy rains and storm surges caused damage to homes and key infrastructure, specifically power and communications (Whelan and Dalton 2017). Flooding damaged as high as 90% of the homes in some communities (Althaus 2017b). Damage to tourism destinations and buildings was also emphasized amidst concerns over Hurricane Irma's timing right before the winter tourism season (Althaus 2017c). However, the WSJ had criticism of infrastructure maintenance in the country:

> *"Havana's downtown has become a major tourist draw in recent years, but decades of neglect have left many its buildings prone to collapse after even normal seasonal rains. By Sunday morning, central Havana's streets remained flooded and wind gusts of up to 60 miles an hour were sweeping the Cuban capital, as rescue crews in thigh-deep water evacuated people from city streets"* (Althaus 2017b).

By adding the qualifier "after even normal seasonal rains", the WSJ detracts from the severity of Hurricane Irma as a cause for the damages sustained in Cuba. Instead, it shifts blame to the government for poor maintenance of infrastructure.

Response

Florida

Response in Florida was largely characterized by positive official action and swift efforts to restore power by utilities providers.

Positive Official Action.   The WSJ cites a variety of emergency responders that assisted Floridians in the wake of Irma, with an emphasis on national forces.   Approximately 30,000 National Guardsmen were deployed to Florida.   The Coast Guard also aided in search and rescue operations, reestablished shipping lanes to facilitate movement of necessary supplies, and restored navigation tools (Kesling 2017).   Both state and local officials also capitalized on communication through social media; NOAA tweeted updates on storm risk as Irma approached Florida, and Governor Scott worked with Google to ensure road closures and other hazards were reflected in Google Maps (MacMillan 2017).   However, FEMA administrator Brock Long provided criticism, saying, "This is a wake-up call. People cannot depend solely on the Federal Emergency Management Agency to be responsible for a majority. States do a lot of work" (Kesling 2017).   In the WSJ articles, there is limited attention to actions by local officials as well, reflecting a similar sentiment to Mr. Long's statement.

Restoring Power.   Utilities providers received strong praise.   Over 60,000 utilities workers from both the US and Canada set out to restore power to the 6 million residents still without power in Florida 2 days after Irma passed.   The crews worked on underground and above ground infrastructure, and their efforts were described as "herculean" by the WSJ (McWhirter et al. 2017).

United States Territories

Coverage of response in the territories was limited and centered on federal aid to the US Virgin Islands.   President Trump established a major disaster declaration for the US Virgin Island, and increased federal funding emergency response and debris removal (Scurria 2017,

Althaus 2017b).   FEMA also provided water and supplies to both territories, amounting to 443,000 meals and 146,000 liters of water in the Virgin Islands alone (Campo-Flores and Kamp 2017, Carlton and Mann 2017).   In addition, FEMA deployed workers on the ground; canine search and rescue teams scoured both territories (Carlton and Mann 2017).   Emergency responders evacuated residents from the worst hit islands of the archipelago (Scurria 2017).

By omitting official actions of the local governments, the WSJ portrays Puerto Rico and the US Virgin Islands as dependent on the federal governments and decreases perceptions of their agency.

European Territories

The WSJ's coverage of response in European territories heavily focused on crime and looting. St. Martin, a French and Dutch territory, had forces of both governments providing aid, but fell under criticism from residents. The French government provided aid in the form of water and ready made meals (Kamp et al. 2017a). However, 4 days after the storm, residents complained that there was insufficient forces present to maintain order and provide supplies (Dalton 2017).   In response to criticism, the French government increased its aid, providing 137 tons of food and nearly 500,000 gallons of water to St. Martin. Still, one week after the storm, residents complained of a complete lack of food and water, along with persistent looting (Dalton and Schechner 2017).

However, the majority of the WSJ's focus was on reports of crime and looting in St. Martin. The WSJ describes the "scenes of pillaging" as follows (Whelan and Pop 2017):

> *"Authorities have struggled to contain looting on St. Martin in the aftermath of*
> *the storm. Reports of armed bands roaming the island pushed residents to shelters*
> *near island's local police and fire stations"* (Whelan and Dalton 2017).

The Dutch government declared a state of emergency on their half of the island, giving police more leeway to arrest suspected looters (Althaus 2017b). The government also committed 550 troops to maintain order in response to reports of looting (Dalton and Althaus 2017). French authorities had 500 policemen patrolling the grounds, and enforced a curfew to keep residents

safe (Whelan and Pop 2017). These early efforts did little to curb the looting though. By the time the French government made substantial increases in their response, most food stores had already been looted, along with theft of electronics, jewelry and luxury items from local shops (Dalton and Schechner 2017).

Similarly, the WSJ focused response coverage of British territories on crime. A lawmaker in the Foreign Office reported that 100 serious prisoners escaped from a damaged prison during the storm. He referenced this situation as "a serious threat of the complete breakdown of law and order in the British Virgin Islands" (Dalton and Schechner 2017). The British government committed 700 troops to the region in order to help with relief and safety (Dalton and Althaus 2017). A few days later, all of the prisoners were captured, helping to "restore order on the Caribbean islands struck by chaos and lawlessness in the days after Hurricane Irma (Gross 2017).

Overall, the WSJ's overwhelming focus on looting and crime in European territories created a picture of lawlessness and social disorder in the wake of the hurricane. Though actions by officials were present, the articles reflected heavy criticism of their efforts.

Sovereign nations

Coverage of response in sovereign nations is almost absent. One article briefly mentions rescue crews wading through floodwater to reach stranded residents and a resident's account of neighbors assisting one another (Althaus 2017b). However overall, there is a lack of significant information regarding response in the aftermath of Hurricane Irma.

Climate Change

Only one article out of the 60 in the sample mentioned climate change. An article published one day after Hurricane Irma made landfall in Antigua and Barbuda, he was cited with the following comments:

> *"Mr. Browne blamed global warming for the intensity of the hurricanes and*
>
> *called on the U.S. and other industrialized nations to help island nations like his*
>
> *that are paying the consequences"* (Althaus 2017a).

The quote had no other context, and the article just continued to discuss damages to the Caribbean from the storm. Additionally, the quote was placed toward the end of the article, and the statement was not referenced again. The WSJ placed the topic of global warming in the background of the article, deemphasizing its significance.

DISCUSSION

Key Takeaways and Relevance to Climate Refugee Literature

Order vs. Chaos

In articles focusing on response, both news agencies foregrounded crime and looting in US territories and European nations. By describing the "lawlessness that prevailed" and "scenes of pillaging", the articles portray the residents negatively, and officials as ineffective (Whelan and Pop 2017, Ahmed 2017a). This image directly contrasts the actions of Floridians, where preparation consisted of "a run on basic goods, with shelves picked clean of water and many gas stations left with only fumes" (Santora et al. 2017). There is no suggestion of crime in Florida, but instead an image of responsible residents orderly gathering supplies. Through this contrast, audiences receive messages that ignore the desperate circumstances produced by Hurricane Irma, and instead frame victims as perpetrators of crime. The order in Florida suggests more orderly residents, lacking the context of the state's relatively less destruction in comparison to other areas. A key difference in the two sources is that the WSJ disproportionally covered crime compared to other types of response. Though the NYT contributed to the picture of looting, it also mentioned positive community response undertaken by other residents. On the other hand, nearly all of the response coverage by the WSJ discussed crime in European territories.

This parallels racially discriminatory media coverage in Hurricane Katrina that made landfall in the United States in 2005. A study on The New York Times, The Washington Post,

USA Today, and The Wall Street Journal showed that African Americans were significantly more likely to be labeled as "looters", while their white counterparts were shown trying to maintain order (Kahle et al. 2007). Coverage of Hurricane Irma adds another layer by including a wider population. By reflecting the similar discrimination in Irma, crime coverage influences how Americans view other countries or even their own territories in relation to the US.

Connecting back to the climate refugee discourse, this biased coverage reflects ideas of the security frame developed by Reuveny. The security frame suggests that conflict is produced by resource scarcity, as experienced in the shortage of necessary goods in European territories. Reuveny suggests that developing countries are more prone to resource scarcity because of their diminished capacity to provide by their populations. Additionally, the frame predicts that emigrants from these areas will cause conflict in receiving countries. Therefore, by emphasizing crime in European territories, the NYT and the WSJ contribute to this framing of potential climate refugees.

Variation in Official Response

Both the NYT and the WSJ contrasted the actions of officials in the United States compared to other groups affected as well. In Florida, there were only positive depictions of officials from the local to federal levels providing aid to the state. Articles emphasized Florida's proactive policies to update building codes and adapt power infrastructure to increase resilience to hurricanes and flooding. On the other hand, US territories were depicted as reliant on federal support, and European territories and sovereign nations mostly depicted inadequate response. Further, these actors were shown at fault for failing maintenance that resulted in higher damage to infrastructure.

This contrast links to the "degradation narrative" proposed by McLeman. The degradation narrative suggests that migration is a form of adaptation, caused by insufficient implementation of other adaptation methods. McLeman emphasizes that there is unequal adaptation across countries, citing "institutional neglect of infrastructure" as one example (McLeman and Hunter 2010). Variation in official response reflects these ideas. Local governments outside of Florida are portrayed as reliant on aid from the US or European nations, and vulnerable to damage due to their own mismanagement of infrastructure. Like the

implications of the degradation narrative, this framing emphasizes internal economic causes for damage rather than the storm severity, exacerbated by climate change.

Climate Change

Overall, attention to climate change was the most prominent difference between the NYT and WSJ. The NYT emphasized climate change as a policy concern, and communicated climate science and the link to hurricanes. In contrast, the WSJ only included one mention of climate change. However, to a limited extent, both displayed the divide between communities experiencing the consequences of climate change, and policymakers at a higher level. Karen McNamara emphasized the importance of local voice in her interviews with ambassadors of small island states, who are experiencing the consequences of sea-level rise and extreme weather the most (McNamara and Gibson 2009). These voices are integral to providing a counter-discourse to climate denial at the federal level in the United States. The NYT clearly contributes to the counter-discourse, while the WSJ's lack of willingness to significantly discuss climate change suggests it remains in the right-leaning dominant discourse.

Limitations of My Study

Overall, my study had some limitations that impact the broader implications of the results. First, the limited scope of a single case study in a 10-day period limits the applicability to other cases. Since the time period is limited, I do not analyze where displaced persons are moved. Additionally, since I restricted the media outlets to 2 US sources, the discourse only represents American perspectives. I also struggled with developing strong methods for critical discourse analysis, since the number of studies that utilize this method are limited. Discourse analysis requires individual interpretation and close reading of the text that can be subject to bias.

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