Does the Type of News Coverage Influence Donations to Disaster Relief? Evidence from the 2008 Cyclone in Myanmar

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Abstract

This paper examines the relationship between media coverage of a major natural disaster and charitable giving for disaster relief, focusing on three questions: first, was media coverage of Cyclone Nargis in May 2008 correlated with charitable giving to disaster relief in Myanmar? Second, were charitable contributions earmarked for disaster relief in Myanmar impacted by the occurrence of a second major natural disaster – the May 2008 earthquake in Wenchuan, China? Third, how did different types of news stories affect same-day charitable giving to disaster relief efforts in Myanmar? These questions are analyzed in a rich multivariate regression framework, and results show that charitable giving is indeed correlated with media coverage, that donations to disaster relief in China appear to compete with those to disaster relief in Myanmar, and that "event-driven" news stories strongly and positive influence the level of giving whereas news stories classified as "institutional" or "human-interest" do not have any discernible impact.

Keywords: natural disasters; media; news; charitable giving

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1. Introduction

Cyclone Nargis, a tropical cyclone packing winds of up to 150 miles per hour, slammed into Myanmar on May 4-5, 2008. Official figures list 84,537 dead and 53,836 missing in the disaster (UNICEF 2009). One week later, an earthquake measuring 7.8 on the Richter scale struck Wenchuan, China. The earthquake felt felt as far away as Vietnam, and with 69,180 deaths, is the deadliest earthquake in China since the 1976 Tangshan earthquake (Ansfield 2008). For the first time in recent history, two separate major natural disasters struck two neighboring countries within days of each other. This unfavorable coincidence led to the potential of competing rescue efforts, resources, media coverage, and donations between Myanmar and China.

Relief workers have long believed that media coverage of humanitarian crises and charitable giving to relief agencies are causally related. Private donations to relief agencies during the early stages of the Rwandan genocide in 1994, for example, were sufficient to support approximately one million displaced Rwandans, but after the O.J. Simpson trial eclipsed Rwanda in U.S. media coverage, funding for relief activities declined (Brown and Minty 2008). Few studies have systematically assessed the relationship between media coverage and the behavior of private donors, and those that have often suffer from important analytical shortcomings. An analysis undertaken by the Institute for Philanthropy founnd, for example, that 14 of 15 British philanthropists surveyed believe that media have the power to encourage private donations, with 11 of the 15 being inspired to make charitable donations themselves (Breeze 2005). Similarly, Olsen, Carstensen, and Høyen (2002) found a high correlation between the total number of articles pertaining to disasters in Western newspapers and the amount of humanitarian assistance allocated to victims of flooding in Mozambique in 2000 and the cyclone in eastern India in 1999. Unfortunately, neither sample is large enough to make generalizations, and no attempt has been

made to quantify the magnitude of this causal relationship. Brown and Minty (2008) investigated the empirical relationship between media coverage of the December 2004 tsunami and private donations to U.S.-based relief agencies, and while they found a sizable positive impact of media coverage on donations, they were unable to test for the differential impact of different types of news coverage on donations.

In this paper, we examine three questions. First, was media coverage of Cyclone Nargis in May 2008 correlated with charitable giving to disaster relief in Myanmar? Second, did the occurrence of a second natural disaster – the May 2008 earthquake in Wenchuan, China – adversely affect the level of donations to disaster relief in Myanmar? And third, did different types of new stories affect charitable giving on the same day that those stories were aired? Specifically, we establish a correlation between total news coverage and charitable giving, then compare the differing effects of "event-driven" news stories, "human-interest" stories, and "institutional" stories. Given that the Wenchuan earthquake occurred during the early stages of the relief effort in Myanmar, we also investigate whether charitable giving to disaster relief in China crowded out charitable giving to disaster relief in Myanmar. Using a multivariate regression framework, we find that news stories that we classify as being primarily human-interest in nature have no effect on charitable giving. – a result that also holds for institutional stories. In contrast, event-driven stories such as death toll announcements positively and significantly affect giving. We also find evidence that a rapid decline in giving to relief in Myanmar coincided with the Wenchuan earthquake, suggesting that crowding out did indeed occur.

This paper is organized as follows: Section 2 lists theoretical motivations for charitable giving from the economics literature; Section 3 provides details about the Myanmar cyclone and

the media response to the disaster; Section 4 describes the data and variables used in our work; Section 5 discusses the results of this study; and Section 6 presents conclusions.

2. Motivations for Charitable Giving

The economics literature posits two differing explanations for the motivations underlying private contributions to charities. The "public goods" model is exemplified by donors who give based on the anticipated private return to some form of public good (Warr 1982; Roberts 1984). In contrast, the "private consumption" model holds when donors derive utility from the act of giving – often because the public approves of such giving – which may benefit the donor (Arrow 1972; Steinberg 1987). For example, conspicuous donations may signal wealth, thereby enabling donors to interact with people in higher socioeconomic strata (Glazer and Konrad 1996). Donors may also receive a "warm glow" from making charitable contributions (Andreoni 1989, 1990) if the well-being of others enters into their own utility functions, even when their donations displace those of other donors, when no social benefits accrue to donors, and when the beneficiaries of charitable giving are not known to the donors.

Rose-Ackerman (1982, 1996) proposes that people derive utility from charity only if they donate personally. Complementary research suggests that utility gains from donating depend critically on the behavior of others. Duncan (2004) argues, for example, that many individuals make charitable gifts only if their donations represent large proportions of the total received by a given charity. Sugden (1984) suggests, in contrast, that individuals are averse to free riding, and hence donate if others in their peer group have also given, even if the amounts involved are very small. Brown and Minty (2008) conclude that most donors to relief efforts after the December 2004 Indian Ocean tsunami were neither motivated by conspicuous giving for social recognition

nor by opportunities to partake in "impact philanthropy." Instead, they argue that people donated to relief efforts precisely because so many others were doing so.

The majority of households in the U.S. donate to charities, regardless of whether motivated by public goods or private consumption. In 2000, for example, 69% of U.S. households made charitable donations, averaging $1,942 per household (Steinberg and Wilhelm 2003). Moreover, both the beneficiaries of charitable giving and the level of donations appear to be influenced by world events, as evidenced by the $1.6 billion in private donations given to support relief after the 2004 Indian Ocean tsunami, by the $2.4 billion in donations to the victims of the September 11, 2001 terrorist attacks in New York, and by the $3.3 billion raised by U.S. charities for disaster relief after Hurricane Katrina hit New Orleans. These striking examples of generosity by U.S. donors coincided with highly-concentrated media coverage in the weeks following these disasters, suggesting that such media coverage may catalyze charitable behavior.

3. Cyclone Nargis, Media Coverage, and Charitable Giving

Cyclone Nargis is considered to be both the worst natural disaster to strike Myanmar in recent history (UNICEF 2009) and the worst to hit Asia since 1991, demolishing infrastructure such as roads, bridges and power lines and cutting the supplies of electricity and potable water. The cyclone and accompanying storm surge also caused massive damage to the agricultural sector – up to 63 per cent of paddy fields were inundated and 85% of seed stocks were lost. Loss of draft animals and power tillers affected over 52,000 farmers, who thereafter faced extreme difficulty in the next rice-planting season. All told, the lives of an estimated one million people were adversely affected, with official figures listing 84,537 dead and 53,836 missing (UNICEF 2009). In comparison, the earthquake that struck Wenchuan, China a week after the start of Cyclone

Nargis left almost 70,000 people dead (BBC 2008), the December 2004 tsunami claimed 230,000 lives (Reuters 2008), and Hurricane Katrina caused 1,577 deaths (Giving USA 2005, 2006).

Private donations to relief agencies surged immediately after Cyclone Nargis and the earthquake in China occurred. American nonprofit groups raised over $123 million for victims of these two disasters (Preston 2008), including $33 million for Myanmar and $90 million for China. Putting these figures into perspective, $1.92 billion was contributed on behalf of the December 2004 Tsunami, $5.3 billion on behalf of Hurricane Katrina in August 2005, and $150 million on behalf of the Pakistan Earthquake in October 2005 (Giving USA 2005, 2006).

However, delivering aid to Myanmar was significantly complicated by the country's secretive and autocratic government. Many relief agencies were forced to scale back their rescue efforts due to difficulties in legally entering the country and due to restrictions on movement once entry was gained. Rescue workers reportedly faced harassment by government officials, and some parts of the country remained accessible only by boat (Preston 2008). In some cases, relief supplies were re-packaged into cartons bearing government labels, leaving charitable organizations to question whether they were helping to bolster support of the military junta. U.S. government sanctions against Myanmar represented a further constraint on U.S.-based aid workers. In contrast, rescue efforts in Wenchuan, China were met with few obstacles.

News coverage of the Myanmar disaster surged immediately after it occurred on May 4. The cyclone ran as a major news story until the end of May, although occasional news coverage – mostly consisting of special reports looking back at the disaster – appeared as late as September. For example, the last news coverage of Cyclone Nargis on the NBC Evening News was on August 7, when First Lady Laura Bush visited a camp for displaced persons in Myanmar.

Individual stories comprising this coverage took a variety of forms, from general reports on the impacts of the cyclone and official tallies of casualties to human-interest stories about individual victims of the disaster. Much of news related to Cyclone Nargis, however, focused on the difficulty that international agencies had in providing aid to Myanmar and of reporting from the field in Myanmar due to the above restrictions. News coverage of the earthquake in China also ran as a major news story in May and June 2008, although lingering coverage of this disaster continued until as late as November on the three major U.S. networks.

Many U.S.-based relief agencies raised money for disaster relief in both Myanmar and China. AmeriCares, for example, raised $1.2 million in cash for Myanmar and $1.2 million for China, Direct Relief International raised $800,000 for Myanmar and $200,000 for China, Mercy Corps raised $7 million for China and $2 million for Myanmar, and Save the Children raised $7.2 million for Myanmar and $1.6 million for China (Preston 2008). Other agencies focused on relief for either one disaster or the other. For example, the International Rescue Committee contributed to relief efforts in Myanmar – where it has a long-established program – but not to China – where it did not.

4. Data and Variables

The Internet emerged as a powerful tool for soliciting donations for disaster relief early in this decade. By the time of the 2004 Indian Ocean tsunami, Americans were accustomed to donating online, and Internet donations represented roughly half of all charitable contributions for relief efforts in that disaster (El Nasser 2005). The subsequent emergence of social networking websites such as Facebook and Twitter has further contributed to the popularity and ease of online giving. Donations made online are thus used to proxy for donations made more generally.

For studying the interrelationship of media coverage and charitable giving, donations made online offer at least two distinct advantages over donations made by cash or check. First, donations collected in person or sent through the mail require time for processing by the recipient agency; because mail delivery and processing times may vary, it is difficult to determine which specific news story may have influenced any individual donation. Second, computerized records eliminate the potential for recall error regarding either the value of gifts or the dates on which they were made. Average donations made online each day to U.S.-based relief agencies for the 70 days following Cyclone Nargis is therefore used as the main outcome of interest in our study. Because we are also interested in the impact of a second major disaster on charitable giving, we use data from four agencies that responded to both Cyclone Nargis and the Wenchuan earthquake. Importantly, donors who gave online selected a specific appeal for support. For cyclone relief in Myanmar, donations to each of the four agencies averaged $4,758 per day during the study period.

Media coverage is first measured by the number of minutes of reporting dedicated to Cyclone Nargis on the three U.S. network evening news broadcasts – ABC, CBS, and NBC. According to the Pew Center for the People and the Press (2004), 34% of Americans regularly watch the nightly news on one of these networks, making nightly broadcasts among the most common sources for news. Brown and Minty (2008) showed that the amount of television and print news generated on any given day are highly correlated, so we use television news coverage to proxy for news coverage from all sources. Between May 4 and July 15, 2008, the total time allocated to Myanmar cyclone coverage was 33.3 minutes on ABC, 20.8 minutes on CBS, and 5.9 minutes on NBC. To evaluate the impact of a second disaster on giving to cyclone relief, we also use nightly news coverage of the Wenchuan earthquake. Between May 12 and July 15,

2008, ABC allocated 98.8 minutes of its evening news broadcasts to the earthquake, CBS 43.9 minutes, and NBC 34.3 minutes.

To assess the marginal impact of different types of media coverage on charitable giving, we follow Livingstone and Bennet (2003) in classifying news stories into three categories – "event-driven," "institutional," and "human-interest." This approach favors the context-specific design for content analysis advocated by Krippendorff (2003) and other scholars in communications research. Broadly, types were categorized as follows:

- **Event-driven**: News that reports the occurrence of an event and/or factual information such as death tolls or other statistics, e.g., the following press release from Myanmar's state-run media on May 6, 2008: *More than 22,000 people have been found dead with another 41,000 missing. Hundreds of thousands are now homeless.*

- **Institutional**: News that result from the actions and pronouncements of governments and supra-governmental organizations such as the United Nations and their spokespersons, ministers, and leaders, e.g., the following report from May 7, 2008: *France suggests invoking the United Nations' "responsibility to protect" clause to get aid to cyclone victims without junta approval.*

- **Human-interest**: News that may be characterized by its timeless quality, often focusing on individuals, e.g., the following recounting from blogger Nyi Lynn Seck: *When flood water came, all our family ran to upstairs. During that time, wind was also blowing quite rough, and water waves were hitting the house. Our house's pillars were quite large. Even such large pillars became loose. When water reached the upper floor, I pushed my two younger sisters above the ceiling beams. It was very dark and I could not see anything properly. I suddenly saw mother was flushed way with a wave from father's hand. When I tried to grab my mother, she shouted and pushed me back. When I turned my head to my two sisters, they were gone.*

In the week immediately following the disaster, human-interest and institutional stories competed with event-driven stories for news time, as evidenced by the simple correlations of -0.594 between institutional stories and event-driven stories and -0.544 between human-interest stories and event-driven stories. However, the competition for news coverage is less intense by the second week, with simple correlations of -0.321 and -0.051, respectively. By the third week, there is no evidence of competition between event-driven stories and other types of news,

although human-interest stories and institutional stories increasingly coincide, with a simple correlation of 0.622.

5. Results

The first question of concern in this paper is whether media coverage of Cyclone Nargis is correlated with charitable giving to disaster relief in Myanmar. To answer the first question, we calculate the correlation between the total number of minutes allocated to coverage of the cyclone disaster across the three major network nightly news broadcasts each day and the average online donations received by the four relief agencies participating in our study for that some day. We find that the simple correlation between total news and charitable giving to relief for Myanmar is 0.587, suggesting that the relationship between media coverage and online giving is quite strong.

That being said, correlations fail to account for the fact that donations tend to be highest immediately following a natural disaster and decay afterward, regardless of the news coverage (Wynter 2005). This phenomenon is known as "donor fatigue," a state in which donors exhaust their resources early or in which they grow complacent about appeals from charities, leading to a diminished public response. To account for the possibility of donor fatigue, we analyze the relationship between media coverage and charitable giving in a multivariate framework that controls for the passage of time, both in levels and as a square. Donations for cyclone relief had dwindled to near zero for all four agencies by mid-July, so we restrict our analysis to the first 70 days following the disaster. Finally, because no donations were recorded on nearly 17% of the

days included in the study period, we use a tobit model[1] with heteroskedasticity-robust standard errors[2] for the analysis.

Results are presented in Table 1, Column 1. The relationship between the number of days since the cyclone and average donations is convex, consistent with a story of donor fatigue. Once we control for time in this way, however, total news coverage of the disaster does not have a statistically significant impact on giving to cyclone relief. Thus, the widely perceived relationship between media coverage of a disaster and charitable giving for disaster relief may reflect the fact that both tend to peak immediately following the event.

Our second line of inquiry is whether charitable contributions earmarked for disaster relief in Myanmar were impacted by the May 2008 earthquake in China. We find that the simple correlation between the share of disaster news allocated to the earthquake and the share of charitable giving directed toward relief efforts in Myanmar is -0.483, which suggests that relief efforts in the two countries did indeed compete for donations. Adding a dummy to indicate whether the China earthquake was in the news on the day that donations were made to the multivariate regression described above, we find a negative and significant (at the 90% confidence level) relationship between news coverage of the earthquake and donations to cyclone relief (Table 1, Column 2).

The influence of the China earthquake and donations to cyclone relief in Myanmar may also be seen in nonparametric analysis. Figure 1 displays average daily donations to the four

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[1] The tobit model employs Maximum Likelihood Estimation techniques to deal with data which is zero for a nontrivial fraction of the observations. Unlike Ordinary Least Squares estimation, the Tobit estimation procedure is consistent in the presence of such truncated data. See Amemiya (1973) for a full discussion of the Tobit estimator and its important properties. Given the significant numbers of zero observations for donations during the study period, this approach therefore offers a significant improvement over least squares regression methods.

[2] A central assumption of most econometric models is that standard errors are homoskedastic across observations. To account for the potential violation of this assumption, we follow White (1980) to obtain heteroskedasticity-robust standard errors, thereby increasing the reliability of results.

relief agencies over time. The heavy dark line represents the empirical giving on each day; its generally falling slope is consistent with waning donor interest in the story. The medium gray line represents the predicted level of charitable giving to cyclone relief in Myanmar accounting only for the passage of time while the lightest gray line represents the predicted level of charitable giving to earthquake relief in China. In the latter two cases, donor fatigue is evident, but the decline is rather gradual compared to the empirical level of charitable giving. It is thus evident that the empirical rate of donation decay is faster than that predicted for either Myanmar (which is endogenous) or China (which is not), i.e., that there is competition for charitable giving to relief in Myanmar from charitable giving to relief in China.

The unsmooth nature of giving evident in Figure 1 suggests that some factor other than time also affects charitable donations. If total news coverage does not strongly impact donations on any given day controlling for timing (as evidenced by Table 1, Columns 1 and 2), one possible explanation is that different *types* of news coverage may influence the level of giving. This is the focus of our final research inquiry.

Columns 3 and 4 add dummies indicating that the daily news coverage included event-driven news stories (as defined in the previous section) to the specifications reported in Columns 1 and 2. To allow different marginal effects of various types of news coverage, we also include terms interacting total news in minutes with the event-driven news dummies. The F-statistics reported in the bottom of the table thus describe the statistical significance of an additional minute of event-driven news coverage on charitable giving vis-à-vis other types of news coverage. We find that an additional minute of event-driven news coverage has a robustly positive effect on charitable giving to cyclone relief (significant at the 99% confidence level), even when controlling for the passage of time and for competition in the news from the China

earthquake: one additional minute of such coverage on each of the three network night news broadcasts would raise charitable donations to our sample of relief agencies on that day by approximately 10.5%.

Perhaps surprisingly, there is no analogous effect for human-interest stories in the news. Columns 5 and 6 control for human-interest stories instead of event-driven stories, but the analysis is otherwise the same as above. Here, we find that the marginal effect of such news on charitable giving is statistically zero. In other words, it appears that private donors are more responsive to event-driven stories than to human-interest stories when analyzed separately.

Our final set of regressions (Columns 7 and 8) includes dummies for both event-driven news stories and human-interest stories, together with their interactions. The omitted category in this case is institutional news stories. Again, we find that an additional minute of event-driven news stories on each of the three network news programs increases charitable donations to cyclone relief by over 10% (statistically significant at the 99% confidence level) while neither additional time allocated to both human-interest stories nor additional time allocated to institutional stories has a statistically significant effect. This result confirms the provocative possibility that casualty statistics prompt larger donations than personal stories of hope and loss in the face of disaster.

6. Conclusion

This paper aims to better understand the interrelationship between news coverage of natural disasters and charitable giving for relief efforts. To minimize the lag between when a particular news story is seen and when the donation is made and to eliminate the problem of recall error, we use online donations as our measure of charitable giving. Using the case study of Cyclone

Nargis – a major disaster that claimed at least 84,000 lives and that affected the livelihoods and welfare of at least one million more people – we employ a rich multivariate tobit framework to show that charitable giving in the U.S. was indeed related to the news coverage provided by the three major broadcast networks – ABC, CBS, and NBC. However, the statistical significance of this relationship fades when we control for the natural erosion of charitable contributions over time, a condition known as "donor fatigue."

While the empirical distribution of average donations received by our sample of four relief agencies does show a marked decline consistent with donor fatigue, it also demonstrates irregular, brief jumps in charitable giving. To ascertain whether different types of media coverage may correlate with such behavior, we nuance our analysis by considering the marginal effects of three different classes of news stories – "event-driven," "institutional," and "human-interest." Even when controlling for the passage of time, we find that event-driven news stories have a strong and positive impact on charitable giving while neither human-interest stories nor institutional news stories have any discernable impact.

The fact that Americans donate to disaster relief in East Asia is consistent with the private consumption motivation for charitable giving suggested by Arrow (1972) and Steinberg 1987, but not the public goods motivation for giving proposed by Warr (1982) and Roberts (1984). Moreover, because the average online donation to cyclone relief is relatively modest, individuals seem to have made charitable contributions because other members of their peer group had also done so (Sugden 1984) rather than because they believed that their individual contribution would have a disproportionate impact (Duncan 2004). Third, the fact that donations were made anonymously and without fanfare over the Internet suggests that donors were motivated more by the "warm glow" provided by contributing (Andreoni 1989, 1990) than by

the desire for socioeconomic recognition associated with publicly visible giving (Glazer and Konrad 1996). Given that the "warm glow" motivation for charitable giving appears to be so strong in the case of Cyclone Nargis, it is perhaps surprising that event-driven news would prompt a strong and positive response from donors while human-interest stories do not. Better understanding the psychological underpinnings of this result remains a topic for future research.

A final finding is that news coverage of the China earthquake had a modest but nevertheless negative impact on charitable giving to cyclone relief, suggesting that the two relief efforts competed for financial support from donors. While the scope of these disasters was indeed massive, they appear modest when compared to the 2004 Indian Ocean tsunami, which caused 50% more casualties than the cyclone and earthquake combined and affected an area that spanned from Indonesia to South Africa. Should two disasters of such magnitude strike at the same time, then relief agencies may have difficulty raising the resources necessary to mount an effective response to both.

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Figure 1.

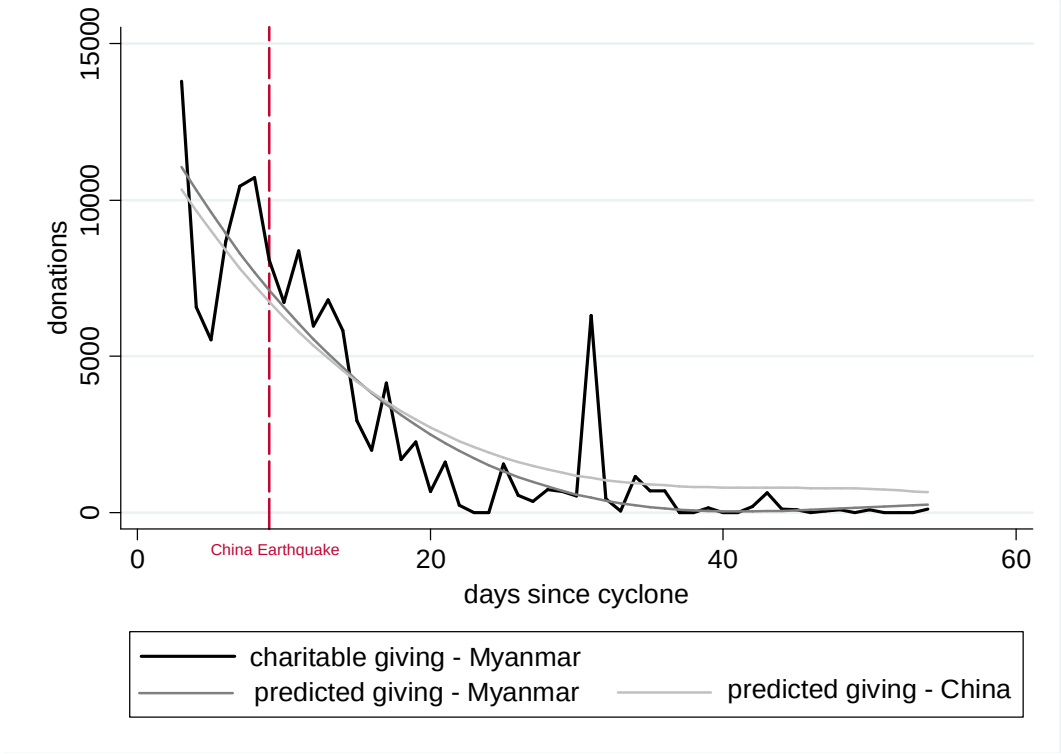
donations
0
5000
10000
15000
China Earthquake
0
20
40
60
days since cyclone
charitable giving - Myanmar
predicted giving - Myanmar
predicted giving - China

Table 1. Effect of News Coverage of the 2008 Myanmar Cyclone on Charitable Giving

Variable	Unit	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
total news on Myanmar cyclone	Minutes	30.22	14.91	-5.750	-10.00	-91.22*	-56.99	-25.17	-12.60
		(36.43)	(22.26)	(12.94)	(14.31)	(54.32)	(47.74)	(46.78)	(42.20)
days since cyclone	Days	-1205**	-1523***	-1113***	-1222**	-1397***	-1598***	-1166**	-1247**
		(505.4)	(478.8)	(415.8)	(507.0)	(511.5)	(568.8)	(448.2)	(511.7)
days since cyclone squared	Days	11.53*	14.20**	10.59**	11.48**	13.06**	14.78**	11.02**	11.70**
		(5.790)	(5.78)	(4.637)	(5.333)	(5.766)	(6.148)	(4.87)	(5.364)
event-driven stories	Dummy			-27,863**	-26,368**			-27,197***	-26,189**
				(10,548)	(10,435)			(10,007)	(9954)
total news * event-driven stories	Interaction			180.8***	174.0***			177.9***	173.1***
				(35.24)	(37.42)			(35.25)	(36.77)
human-interest stories	Dummy					-6795	-4587	-2605	-1795
						(6593)	(6231)	(3373)	(3322)
total news * human-interest stories	Interaction					128.2**	79.20	23.72	6.087
						(60.63)	(54.22)	(48.27)	(43.45)
China earthquake also in news that day	Dummy		-7927*		-2993		-6686		-2792
			(4325)		(3903)		(4156)		(3939)
Constant		21,700**	31,084***	22,246***	25,473**	27,747***	33,537***	23,891***	26,224**
		(9481)	(9618)	(7469)	(10507)	(9631)	(11752)	(8604)	(10658)
Observations		70	70	70	70	70	70	70	70
Pseudo R-squared		0.046	0.049	0.078	0.079	0.047	0.049	0.079	0.079
F-statistic: extra minute of event-driven stories				28.61***	19.58***			7.21***	9.22***
F-statistic: extra minute of human-interest stories						0.67	0.24	0.01	0.14

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1