

Disaster Relief Drivers: China and U.S. in a Comparative Perspective

by

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This paper has not been submitted to any other journal or publication.

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Abstract

As the biggest developed and the biggest developing economies, U.S. and China have their own overt and covert influences on the world. This paper discusses the international response of disaster relief when these two countries were hit by the natural catastrophes of respectively Hurricane Katrina and Wenchuan Earthquake. By using a three-stage process describing the disaster aid decisions, we find that developed countries are more likely to grant disaster aid, but the scale of their assistance was not the largest. The evidence also shows that countries were more likely to offer assistance if they were geographically located closer to the affected areas; however this was not the case in decisions made about the type and size of the aid provided. The assistance from the European countries on the other hand largely shows a form of global humanitarian cosmopolitanism.

Keywords: Disaster Donations; Disasters Relief; Hurricane Katrina; Wenchuan Earthquake

1. Introduction

Natural disasters, such as earthquakes, hurricanes, tornadoes, floods and droughts bring fatalities, injuries, property damage, economic and social disruption to countries which are going through them. Disaster aid for emergency relief and reconstruction is important in meeting the need for reducing the exposure to consequent risks, and ensuring the availability of sufficient funds to governments and individuals during the recovery process. Aid from the international community, such as from foreign governments and international agencies, in particular recognizes the need to mitigate and reduce losses caused by natural disasters. Not only developing countries (e.g. India, China and Afghanistan) but also developed countries (e.g. U.S. and New Zealand) have needed and received international assistance when affected by devastating disasters. This paper examines two such crisis situations, Hurricane Katrina and the Wenchuan earthquake. Despite these being only two isolated cases, there is a lot that can be learned from the scale of these events about disaster relief drivers.

On 28 August 2005, Hurricane Katrina hit the southern coast of the United States causing devastating damages and destruction. It was reported that more than 1,800 people lost their lives, and more than \$81 billion in damages occurred. Katrina was the costliest hurricane, as well as one of the five deadliest, in the history of the United States. It destroyed the livelihoods, ravaged the lives of thousands of people and left long-lasting trauma. Also, serious concerns were raised about the human and institutional response to this disaster, as well as about how the weakest within the society are supported in times of severe need for targeted assistance.

As delineated in the United States' National Response Plan, disaster response and planning are first and foremost a local government's responsibility. When the local government of the disaster-stricken area exhausts its resources to tackle the disaster, it then requests specific additional assistance from the national or international communities. On 4 September 2005, one week after Hurricane Katrina, the United States officially asked the European Union for urgent assistance with the crisis situation, requesting blankets, emergency medical kits, water and 500,000 food rations for the victims. Other non-European countries, such as Australia, Cuba, Indonesia, Israel, Sri Lanka and Venezuela, also offered immediate aid. Over 130 countries and more than a dozen international organizations offered help to the United States, with total foreign financial assistance pledged amounting to \$854 million. The

world was united in bracing itself to facilitate a quicker recovery for the affected areas and people.

On 12 May 2008, a magnitude 8 on the Richter scale earthquake struck Wenchuan County, Sichuan Province of China. Neighbouring cities such as Jiangyou, Tianpeng, Guangyuan, Mianyang and Chengdu received extensive damages and were also exposed to continuous aftershocks. According to Yin et al., this “earthquake directly caused more than 15,000 geohazards in the form of landslides, rock falls, and debris flows” (p. 139) and it is estimated that more than 15 million rooms collapsed in this densely populated mountain area. The China Earthquake Administration (CEA) was quick in sending teams of experts to the affected region but despite its efforts, official figures (as of 21 July 2008) state that 69,227 people were confirmed dead, 374,643 injured, 17,923 missing, and 4.8 million people were left homeless. The large magnitude of the earthquake and mass media attention soon caused foreign nations and organisations to respond by offering condolences and assistance. On 14 May 2008, two days after the disaster, UNICEF reported that it had formally requested support from the international community to help the families affected by the earthquake. Faced with a crisis of enormous proportions, China was very quick to rationalise that any foreign humanitarian assistance had a low level of associated political risk. This reaction was very different to Cyclone Nargis, which happened twelve days earlier (on 2 May 2008 and left 29,000 lives lost in the storm itself, over 42,000 people missing and 1.5 million displaced) and when the Burmese government perceived higher political risk leading it to initially reject, but then reluctantly accept some relief long after aid was offered.

In total, over 160 countries expressed diplomatic condolences and offered assistance to China. The total amount of foreign assistance was over \$500 million, though a large portion of the aid was not claimed straight away. It is expected that the geohazards caused by the Wenchuan earthquake will continue to be felt for 5-10 and even 20 years but so would its effects on human lives and society.

When a massive disaster occurs, quick and extensive responses can reduce significantly human and property losses. However, the situation after such a disaster is extremely complex. Considering the large size of the affected geographic area and the numerous organizational entities and individuals involved, disaster relief can be really daunting and difficult. Furthermore, major disasters—in particular those that occur in developing countries—often require extensive help involving worldwide assistance

with information and management. International assistance in disaster relief ideally should be purely humanitarian, objective and non-political, but more often than not it had been shown to be strongly political, and influenced by the nature of the disaster itself, media coverage and a range of other factors, such as foreign policy interests.'

United States– the largest developed nation, and China – the largest developing nation, differ greatly with regard to their economic systems, political order, global influences and disaster recovery capabilities, despite the substantial progress that has occurred in China during recent years. It is still almost inevitable that U.S. will continue to be the world's dominant geopolitical force and the only superpower well into the new century.' Its economy and military hegemony are still unchallenged. China's emergence on the world stage has been building for the past few decades, and the shock waves of its awakening are attracting a lot of attention from the international community. Some predict that China's economy could overtake the US by 2030. The immense capacity of the Chinese state is coupled with the strong drive among its people for a better life and their innate acumen. To a significant extent, China's influence is shaping the business cycle in the 21st century not only in the United States but also in many other parts of the world, including Australia. It seems beyond doubt that China is America's greatest challenge when it comes to exerting influence on other countries around the world', including in the development of new technologies. Of the informal group of 19 countries and the European Union (namely G-20) with representatives of the International Monetary Fund and the World Bank, an actual G-2 (China–U.S.) is emerging almost by default, even though neither China nor the US will give their relationship this grandiose title. In the international affairs research field, comparisons between China and U.S. have proven to be a robust topic."

When these two powerful countries were stricken by massive natural disasters, how did the international community react? Did it display political diplomacy or humanitarian cosmopolitanism in its disaster relief response? If it was a form of diplomacy, what are the drivers of the countries around the globe contributing towards disaster assistance to U.S. and China? The purpose of this study is to test for the difference between the foreign assistance offered to U.S. and China. We analyze this as three sets of decisions related to the natural disasters: (1) the decision to grant disaster aid; (2) the kind of the disaster aid offered; and (3) the amount of this disaster aid.

The remainder of the paper is organized as follows. Section 2 reviews literature

about foreign assistance in disaster relief. The methodology and data used are presented in Section 3. Section 4 describes the data analysis, and examines as to what determines disaster aid. Finally, conclusions are provided in Section 5.

2. Literature review

The research related to disaster assistance shows that most foreign disaster aid decisions are multi-faceted and involve a range of considerations about the recipient country's economic and social development potential, geo-strategy, political and diplomatic impact as well as the donor state's economic benefits. Many studies however convincingly argue that foreign assistance to the disaster-stricken country is overwhelmingly political. There is wide discussion about disaster diplomacy and a growing set of case studies which have been theoretically analysed (see <http://www.disasterdiplomacy.org>).

Whatever the case may be, the success of any disaster relief inherently depends on the people and institutions involved in its implementation. For example, in the case of foreign assistance to U.S. after Katrina, many international donors expressed frustration over legislative delays (for nearly a week after help had been offered) in shipment approvals. Lapses in knowledge management between and across the agencies involved were largely traceable as a cause for the slow reaction. The analysis by Haojun et al. of the on-site rescue operations in the aftermath of the Wenchuan Earthquake reveals inadequate field resources, poor first-aid knowledge and inadequate management by all responsible departments. As people always have their own interests and cultural frameworks, it is not surprising that institutions are also inevitably grounded in politics.

The U.S. foreign humanitarian aid, in particular, has been demonstrated to be strongly political at the granting and allocative stages and guided by three basic types of consideration: U.S. foreign policy concerns or reservations about the potential recipient state, domestic U.S. political concerns, and domestic politics within the potential recipient state. The political considerations in foreign assistance for disaster relief are often expressed through support being granted specifically for development projects. In emergency operations in Afghanistan, the level of financial assistance was found to depend on the degree of political, and in particular security, interests that the aid-funding governments (donors) have in the specific region where the humanitarian crisis occurs. As a large developing country, India also implements disaster relief

diplomacy and within the Asian context politics and political interests of national governments appear to be more important than the actual purveyors of assistance. They affect the nature, speed, timeliness and effectiveness of relief operations. The evidence available from studying Aceh following the 2004 Asian tsunami suggests that inter-state and intra-state disaster diplomacies are similar, irrespective of the players involved, and that disaster diplomacy is similarly limited in resolving decades-long conflicts and achieving peace.

“Distance” is a privileged topic in geography discussions about the moral philosophy of aid. Some geographers debate the so-called “geographies of generosity”, focusing on disaster donations around the themes of “caring at a distance” and the “geographies of responsibility”. Theoretically, geographies of generosity can refer to different aspects of generosity in which new modes of spatial relationship are being formed that go beyond the simplistic dualism of giving and receiving. In this emerging field, present studies analyse the geographies of generous practices to examine the multiple and complex motivations for help following the occurrence of natural disasters and/or political emergencies.”

In the 21st century, spatial distance has become much more fluid, which has made disaster assistance become more cosmopolitan. Since there is no international mechanism to ensure that global communities offer assistance to the disaster-stricken countries, global cosmopolitanism is asserted to be the moral grounds for dealing with disasters. According to Calhoun, “(c)osmopolitanism has become an enormously popular rhetorical vehicle for claiming at once to be already global and to have the highest ethical aspirations for what globalization can offer” (p. 427). The disaster responses from the global communities therefore have become part of the argument about cosmopolitanism, advocated by social sciences in the 1990s. In the disaster responses of donor countries, cosmopolitanism and nationalism cannot be sharply juxtaposed, but cosmopolitanism is often framed through national interests.

The severity of any disaster situation coupled with limitations in aid resources and the need to act urgently, justifies the calls for a global information network (GIN) that could be extremely useful. Such a GIN should be capable of retrieving and collating data into useful information to support international agencies in facilitating the humanitarian assistance and disaster relief. Four key factors need to be taken into consideration in designing a GIN: the nature of the humanitarian assistance/disaster relief; the social, cultural and organizational context; the scarcity of resources and the

negotiation style among participating agencies.

Another factor that influences international assistance is media coverage. Findings of international disaster aid research have repeatedly shown that the level of news media coverage in the domestic press has the most consistent and most substantial influence upon assistance offered by U.S. and Japan.' A study of U.S. government response to natural disasters in other countries between 1968 and 2002 alludes to a direct link with "other newsworthy events, such as Olympic Games" (p. 693) and other material that crowds out the news coverage. The more attention the disaster coverage receives in the media, the higher the willingness for help is, making it dependent on obviously unrelated events.

Social cognitive factors have a significant direct effect on disaster relief campaigns. A causal model covering 11 factors for donating money to charity shows that "self-efficacy, outcome efficacy, trust in the IRO [international relief organization], moral obligation, need for donation, awareness of the IRO, and past donation showed significantly positive effects on intention" (p. 241). There is also a general tendency for politicians and governments to meet the public expectation by offering foreign assistance in the donor countries. Not surprisingly, the public donation to relief operations is related to the government's donation behaviour in a particular country.

There have already been several studies of the devastating effects from the Wenchuan Earthquake and Katrina Hurricane which focus on the topics of corporate disaster donation behaviours, disaster diplomacy, political costs of disaster response failure and social protection in disaster.". The findings of these studies are quite useful for effective government policies in disaster response and disaster management. However, these two events have not yet been studied from a comparative perspective. Despite significant national differences between U.S. and China, the response from the international community was very united with offers for help coming from all over the world. This also provides a unique opportunity to conduct a quantitative analysis of the factors that determined the levels of foreign assistance. Despite some significant differences in the institutional settings of the two countries, particularly in the institutional design of disaster relief, a comparison between these two cases is justifiable based on the strong similarities in the economic power that China and U.S. hold in influencing the global economy.

The literature reviewed shows that most of the extant writings attempt to use

developed countries (e.g. U.S. and Japan) to examine what determines their disaster aid to disaster-stricken countries. However, many other countries are responding to the need for help. Woods even talks about a silent revolution in economic assistance where new players from emerging economies (e.g. United Arab Emirates and Saudi Arabia) are becoming more prominent with their aid being more generous and more attractive. When the devastating disaster associated with the 2004 Indian Ocean earthquake and following tsunami happened, non-traditional donors such as China, India, and North Korea offered assistance on a unique scale in disaster history. Also, many developing countries offered assistance to U.S. and China, respectively in the aftermath of Hurricane Katrina and the Wenchuan Earthquake. It is yet not clear on a country level what determines the level of foreign assistance to a disaster-stricken country. In this study, we attempt to provide some answers examining the cases of Hurricane Katrina and Wenchuan Earthquake.

3. Methodology and data

Nations always have significant incentives to maximize their power in international relations and also in the field of disaster relief. National image is considered a country's soft power. One of the major goals of diplomacy is to build, maintain and improve this national image. The active participation in the 2004 Asian Tsunami relief of countries, such as U.S., China and Japan, contributed in many ways towards enhancing their national images and the disaster-related diplomatic activities purpose fully aimed to benefit this.

Building on previous evidence for geographies of generosity¹, this study tries to draw on a range of perspectives concerning the relationships between global disaster assistance and the themes of "caring at a distance" and "geographies of responsibility" in the aftermath of Hurricane Katrina and Wenchuan Earthquake. The aim is to statistically analyse the drivers of countries around the globe for contributing towards disaster relief. For the purposes of this study, we consider a country to be a donor of disaster aid if its government has pledged to provide aid respectively to the U.S. or Chinese government. The section to follow presents the theoretical model developed in this study while sections 3.2 and 3.3 elaborate on the variables and data used.

3.1 Theoretical framework

Disaster aid is allocated through a staged process, the first stage of which is the

decision to grant disaster aid. Often referred to as the gate-keeping stage, the initial decision is about which type of assistance response should be taken. This is followed by a decision about what type and how many resources to allocate. Different kinds of disaster aid can meet different needs of the stricken country. What kind of disaster aid to be provided is another decision for the donor countries, and we take this as the second decision stage. The third stage is the decision about the actual size of the assistance.

We use the Binary Logistic method to test the determinants of granting disaster aid, and the Multi-logit method to examine the factors that influence a country to choose the kind of disaster aid. The third stage is the decision about the assistance amount that obviously comes into play only if the first decision is positive. We use OLS (Ordinary Least Squares) linear regression to estimate the influence of the various variables on the variables describing how much assistance to be donated.

3.2 Dependent variables and data

We use three dependent variables to gauge what influences the decisions about disaster aid. In the first stage, the dependent variable is the decision to grant disaster aid. If a country pledged to provide assistance (cash or in-kind) to U.S. or China in the aftermath of Hurricane Katrina or Wenchuan Earthquake, we identify the granting decision as positive, and code it as 1. If not, the granting decision is coded as 0.

If the first decision is positive, the donor country needs to decide the kind of assistance. Disaster aid can be cash, supplies and rescue teams, among others. Cash and supplies were more popular in the Hurricane Katrina and Wenchuan Earthquake relief. Supplies (including rescue teams) have many immediate advantages in meeting the needs of a disaster-stricken country. Additional supplies after a disaster and assistance from neighbouring countries can be provided quickly, and there are fewer language and cultural barriers. According to Redman and Li, international medical aid usually arrives too late to assist in immediate resuscitative measures, but can be extremely valuable in the care for complex injuries or to relieve those who have worked from the start of the rescue operations. Compared to assistance with supplies, cash donations entail no transportation costs. In addition, most of the relief items can be purchased locally or in neighbouring countries. Supplies, particularly food, can almost always be purchased locally, even in famine situations. Hence for other countries which are not neighbouring, donating cash or providing credit if possible

directly to the disaster-stricken area is very convenient. In this stage, the dependent variable is the kind of disaster aid. We divide foreign assistance into three kinds, namely: cash and supplies assistance, cash assistance, and supplies assistance. Cash and supplies assistance refers to the cases when a donor country provides both cash and supplies. Similarly, cash/supplies assistance refers to only cash/supplies help by the donor country.

If the assistance response is positive, then the question becomes as to how much assistance is provided. In the two cases of Hurricane Katrina and Wenchuan Earthquake, we use the variable of the amount of the foreign government's assistance (in 10 thousand US dollars) to represent how much assistance is allocated. This is the third dependent variable.

The data for the three variables in this research are collected from "Summary of Foreign Assistance Received or Expected to Date" and "Summary of Foreign Assistance Received (up to 27/08/2008)". The monetary value of supplies is calculated according to the pledged worth or volume of provided supplies. It should be mentioned that a portion of the pledged donations have not been collected by U.S. and China." In this study, we use the official disaster assistance which was pledged by the government of the donor country to represent the figure for the amount of donation given by one country to another. As information about the actual amounts received is unavailable, it is difficult to get the actual amounts of foreign donations.

3.3 Independent variables and data

As pointed out earlier, the factors that influence foreign disaster aid to a disaster-stricken country include political factors, disaster information, distance from the disaster-stricken country and social cognitive factors. For the purpose of this study and according to the availability of data collected, we use six dimensions to examine the determinants of donor aid which cover most of the factors mentioned above and include some new variables.

Developmental Level. Developed countries and developing countries play different roles in international disaster relief. In general, developed countries have more responsibility for disaster relief than developing countries. We qualify a country as developed according to the CIA (Central Intelligence Agency, U.S.) developed country list and IMF (International Monetary Fund) advanced economy list. We use the dummy variable of developmental level to identify whether a country is a

developed country or not. The developed country is coded as 1, and the developing country is coded as 0.

Distance. Distance is an impediment to generous responses to the needs of others or to caring action. The distance between various countries is one of the important factors when examining geopolitics and geographies of generosity.' Thus, distance is always the determinant as to which kind of assistance should be taken. For example, it is convenient for neighbouring countries to donate supplies to the disaster-stricken country. The distance between the disaster-stricken country and the donor country is measured by the distance from the capital of the disaster-stricken country to the donor's capital.

Trading Relationship. We measure the trading relationship using two variables: export to the disaster-stricken country and import from the disaster-stricken country.

Economic Development. The level of economic development influences foreign disaster aid to other countries. We measure the economic development of a country using two variables: gross domestic product (GDP) and per capita GDP. They reflect the country's ability to provide foreign assistance.

Information Development. The public risk perception and government policy agenda setting are related to the volume of disaster information.' However, it is impossible to investigate the volume of disaster information relevant to Hurricane Katrina and Wenchuan Earthquake in each country in the world. Instead we use information development to represent the extent of the public and government receiving disaster information. We assume that the public and the government can get the disaster information in a country which has high information technology penetration. Hence, we measure this dimension by Internet users per 100 people and television receivers per 1000 inhabitants.

Social Development. The level of social development can influence a country's government foreign assistance. A country with a large population always has more supplies for disaster relief. On the other hand, a country with higher unemployment rate has urgent social problems, such as poverty, to solve, which makes the government more concerned about civil than foreign affairs. Although poverty means different things in different countries, many studies confirm that unemployment rate is significantly and positively associated with poverty.' Hence, we measure the dimension of social development by two variables: population and unemployment rate.

The independent variables are shown in Table 1.

<Table 1 about here>

The data on distance from the capital of the disaster-stricken country are calculated by Geobytes (<http://www.geobytes.com/citydistancetool.htm>). The data for the remaining nine variables are collected from the database of the United Nations (<http://data.un.org/>). For Hurricane Katrina, we use data for 2004. For Wenchuan Earthquake, we use 2006 data as a good proxy. In total, 191 countries (including U.S. and China) are covered which the relevant data as described here.

4. Results and discussions

We use the methods stated above to examine the determinants of the foreign assistance to U.S. and China respectively with SPSS 13.

4.1 Determinants of granting disaster aid

Of the 190 countries, there are 107 donor countries which granted disaster aid to U.S., and 125 countries which provided assistance to China. Of the 189 countries, excluding U.S. and China, there are 80 countries that took opposite decisions on granting disaster aid to U.S. and China. So it is interesting to estimate what determines the decisions of these countries to grant disaster aid.

The Binary Logistic Regression Model, based on the logistic function is generally used to study the nature of dependence of a dichotomous response variable (Y) on a number of explanatory variables (X_1, X_2, X_k), which are either discrete or continuous in nature. The results of granting disaster aid estimated by using the Binary Logistic Regression Model are shown in Table 2. The Chi-square and Sig. (significance) of these two regressions indicate that the model fits the data reasonably well.

<Table 2 about here>

The results show that developed countries are more likely to provide disaster aid to both U.S. and China, most likely because as expected, developed countries take seriously the responsibility for disaster relief. However, there are still differences between the decisions to grant disaster aid to U.S. and China. For Hurricane Katrina, the 107 countries that provided disaster aid are more likely to have greater GDP which means they have more wealth. For the Wenchuan Earthquake, the 125 countries which granted disaster aid are more likely to be closer to Beijing, and have

more export to China.

The comparison shows that besides the developmental level, the factors that determine the granting of assistance to U.S. are the economic development of a country in the case of Hurricane Katrina, and to China – trading relationship and geopolitics in the case of the Wenchuan Earthquake.

4.2 Determinants of the kind of disaster aid

The estimation results from the Multi-logit method show that the factors that determine the various kinds of disaster aid are different when comparing the Wenchuan Earthquake and Hurricane Katrina, as shown in Table 3. The coefficients represent the effect of each explanatory variable on the ratio of the probability of the decision on the kind of disaster aid, relative to the probability of cash assistance.

<Table 3 about here>

These countries that choose both cash and supplies assistance meet both the cash and resource need of the disaster-stricken country, which is considered to be more comprehensive and effective in foreign assistance. The results show that the 29 countries that offered this kind of assistance to China are more likely to have greater GDP, higher per capita GDP and less distance from Beijing. For Hurricane Katrina, these 17 countries are more likely to have higher developmental level, more import from U.S., higher television receivers per thousand inhabitants, larger population and longer distance from Washington, but less export to U.S.

Compared to the response of cash assistance, the countries that decide to provide supplies assistance should know what the urgent needs of the disaster-stricken country are. For Hurricane Katrina, the 32 countries which offered the kind of supplies assistance are more likely to have greater GDP, have more import from U.S. and less export to U.S., which means more foreign trade deficit with U.S. influences the choice of supplies assistance. For the Wenchuan Earthquake, the 22 countries which opted for the response of supplies assistances are more likely to have higher television receivers per 1000 inhabitants, less import from China, greater GDP and larger population. This indicates that the trading relationship between the donor countries and China are not positive factors influencing the supplies assistance to China. Their assistance is determined by the information development and social development factors.

The countries with larger population like India, Japan, U.S. and China, always

have the capacity to deliver more relief supplies. When the disaster-stricken country appeals for special supplies, such as tents, medicine, sheets, generators, etc., these can be collected and delivered immediately. For both the Wenchuan Earthquake and Hurricane Katrina, these countries with larger populations are more likely to provide cash and supplies to U.S., or supplies to China. The higher proportion of television sets has a positive effect on providing supplies, most likely because the donor countries could receive more information related to the needs for disaster relief via television news. Economic development also has a positive effect. A country with greater GDP is more likely to donate supplies.

The significant difference between the donor countries of the Wenchuan Earthquake and Hurricane Katrina is their trading relationship with the disaster-stricken countries. For the Wenchuan Earthquake, the less import from China, the higher the likelihood is for supplies assistance. For Hurricane Katrina, the case appears to be different: the less export to U.S. and more import from U.S., the more likely supplies assistance is.

Distance from the capital of the disaster-stricken country does not guarantee the provision of supplies assistance. It has no significant effect on the decision of providing supplies in both cases. Furthermore, for Hurricane Katrina, a country with farther distance is more likely to provide supplies and cash.

4.3 Determinants of the amount of disaster aid

For the donor countries, how much to donate in response to the destructive events is selective and unstable. There is no significant correlation between the donor countries' response to the two disasters. As the richest and most advanced country in the world, U.S. has more adequate resources to handle and recover from the disaster than China. However, more cash and supplies assistance were provided to U.S. which signals that the international donation has been a competitive campaign.

There were 152 donor countries in all (excluding U.S. and China) that provided assistance to U.S. or China. Of these countries, how much to donate is selective and unstable. We examine the coherence of the amounts from these countries to U.S. and China by using the Bivariate Correlations. The correlation is 0.021 (sig.=0.799), which means that there is no significant correlation between the amounts of assistance to U.S. and China.

We use OLS regression to model the determinants of the amount of disaster aid.

The estimated results are shown in Table 4.

<Table 4 about here>

They show that developmental level has a negative effect on the assistance amount, namely developed countries provided less assistance to U.S. and China, which is against our expectations, most likely because developed countries have integrated humanitarian assistance mechanisms by which the amount of aid is allocated according to the development and recovery ability of the disaster-stricken country. Among the developing countries, most of them are non-traditional donors such as the United Arab Emirates, Saudi Arabia and Russian Federation, but they provided more aid than most developed countries. This can be explained as a chance for success that resulted in disaster diplomacy and strengthened the national images, which might benefit their business trading with China.

Per capita GDP has a significant positive effect on the assistance amount. Higher per capita GDP of a donor country significantly increases the assistance amount. The donor countries with greater per capita GDP indicate that they have the ability to gain more internal revenue, which means they can allocate more aid budget to provide assistance to the disaster-stricken countries.

Export to China has a statistically positive effect on the assistance amount. Donor countries with more export to China provided more assistance. This can be explained by the fact that these countries wanted to keep good relationships with China because of business trading needs. However for Hurricane Katrina, we find no statistical evidence of an impact of trading relationship on the assistance amount.

The statistical significance for Hurricane Katrina is 0.1598, which means that the regression model does not fit the data reasonably well. Hence we need to change the estimation process. Developed countries and developing countries play different roles in international disaster relief, which means that they have different motives for disaster aid. In this study, we use an OLS regression to model the allocation of disaster aid by developed countries and developing countries to U.S. and China. The estimated results are shown in Table 4.

There are 34 developed countries in our samples, including U.S., and most of them provided assistance to China and U.S. Totally, 30 developed donor countries decided to donate \$95.5 million assistance to U.S.; 33 developed donor countries provided \$70.6 million assistance to China which is much less than the assistance to U.S. Ninety-three developing donor countries provided \$500 million assistance to

China, amounting for 64.38 percent of the developing countries' assistance to U.S. which is \$776.0 million. As the richest and most advanced country in the world, U.S. has more adequate resource to handle and recover from the disaster than China. However, more cash and supplies assistance were provided to U.S. which indicates that the international donation has been a competitive campaign.

For developed countries, only GDP has a negative effect on the assistance to U.S., while other variables have no statistical effect. For the Wenchuan Earthquake however, developed countries with more export to China and longer distance from Beijing provided more assistance. An explanation for this can be that these countries wanted to keep good relationships with China because of business trading needs.

For developing countries, the per capita GDP of donor countries has a statistically significant effect on the amount of assistance to U.S. and China. These countries decided the extent of their assistance based on their economic development status. Similar to developed countries, export to China has a significant effect on the assistance amount.

For both developed and developing countries, the level of assistance is provided is always decided by the governments which are concerned about their trading interests with China.

We found no statistical effects of information development or social development on the assistance allocation in both cases.

4.4 The difference of continents on donations

The geographic features, such as locations, distances, terrain, climate, and resources, have an impact on a government's foreign security policies. The continent where the disaster-stricken or donor country is located is an important factor that affects the global disaster response. " This study gives insight and direction to the continent's foreign affairs related to disaster donations to China and U.S. after the two disasters (as shown in Table 5).

<Table 5 about here>

Hurricane Katrina happened in the North American continent, and Wenchuan Earthquake occurred in Asia. The countries of these two continents took different responses to the two disasters. Of the 46 Asian countries, 41 countries have donated cash or supplies to China, but only 33 have done so for U.S. Of the 26 North American countries, 11 countries have pledged to provide disaster aid to U.S., but

only 8 countries have done so for China. Compared to them, the South American and Oceanian countries took a similar response. In Africa, the number of the countries which donated to China is much larger than the number donors who donated to U.S. European countries seem to be more justifiable with equal consideration for the two disasters than the countries in other continents. In this sense, the disaster assistance from the European countries largely shows a form of cosmopolitanism.

From the perspective of the difference of continents on donations, the evidence has proven that geographies of generosity existed in the first stage of disaster aid, namely, the decision to grant disaster aid. A country is more likely to provide assistance if it locates in the same continent with the disaster-stricken country. The countries in the same continent have similar culture, ethnics, business trading, etc., which can improve the possibility of one country to take responsibility for meeting the needs of the disaster-stricken country. U.S. has attracted the generosity of South America and Oceania much more than China because of the influence of U.S. on these countries, for example the relationship of alliance. However, the African donor countries have shown more generosity to China than U.S. because of the traditional relationships between China and African countries. According to this latter view, China's engagement maintains friendly relations with most African nations, particularly with nations that U.S. has limited contact or diplomatic leverage over, such as Libya and Ethiopia.'

As Table 5 shows, the amounts of the six continents' donations to U.S. and China are not coherent with the numbers of donors. The 41 Asia donors provide US\$ 147.40 million to China, while 33 countries donate US\$ 782.20 million to U.S., accounting for 530.66 percent of the amount of donations to China. This can be explained that the donor countries of Hurricane Katrina wanted to attract the U.S. attention by huge donations. The purpose of this motivation is to contribute towards enhancing their national images. In the aftermath of Hurricane Katrina, Kuwait's government made a US\$ 500 million pledge to the relief efforts. A check of US\$ 250 million was presented by the Vice President of the Kuwaiti Red Crescent Society Dr Hilal Al-Sayir at a ceremony held at the American Red Cross Society Headquarters and attended by the Kuwaiti Ambassador in Washington Sheikh Salem Al-Abdullah Al-Sabah . "Because America is our friend and our ally who liberated our country, this is the least we can do to help the US overcome the Katrina natural disaster", said Dr Hilal Al-Sayir in a statement to KUNA. Some donor countries have similar purposes

to keep good relationship with U.S.. Another close U.S. ally, the United Arab Emirates, made US\$ 100 million donation in cash and in kind, including tents, clothing, food and other aid. Thus, the magnitude of donation in response to the destructive events is not significantly related to geographies of generosity according to the donor countries' response to these two disasters.

5. Conclusions

As the biggest developed country and the biggest developing country, the U.S. and China have their own latent influences on the world. Using the three-stage process of disaster aid decision, this paper discussed the foreign responses to U.S. and China when they were hit by the catastrophes of the Hurricane Katrina and Wenchuan Earthquake.

The estimate results from the two cases show some common characteristics of the donor countries. Firstly, developed countries are more likely to grant disaster aid, but didn't provide more aid. On the contrary, they donated less aid than developing countries. A possible reasonable explanation is that developed countries are always expected to have more responsibilities for global humanitarian assistance than developing countries; so they were less generous in allocating assistance to U.S. and China because they considered the two countries to have the ability to handle the disasters.

Secondly, developing countries with greater per capita GDP have the motive to donate more aid. They probably want to take more responsibility for global disaster relief, and create and promote the process of disaster-related reconciliation with U.S. and China. The countries with greater GDP and population are more likely to provide supplies assistance since they have sufficient supplies for disaster relief.

Thirdly, the higher proportion of television sets has a positive effect on providing supplies, most likely because the donor countries populations could receive more information and become more aware about the need for disaster relief.

Finally, some findings go against common expectations. A shorter distance from the capital of the disaster-stricken country does not guarantee provision of supplies assistance. Unemployment rate has no statistical evidence of an impact on disaster aid.

The estimation results show that there are some obvious differences between the

foreign response to the Wenchuan Earthquake and Hurricane Katrina. Firstly, export to China has a significant positive effect on the decision of granting disaster aid and the amount of assistance aid. For Hurricane Katrina however, export to U.S. only has negative effects on providing supplies aid. Secondly, the countries with closer distance from Beijing are more likely to provide aid to China. In terms of Hurricane Katrina, the countries with greater GDP are more likely to grant aid.

A country with greater export to China has a higher likelihood to provide and provide more disaster aid to China, whether it is a developed or developing country. With the rapid growth of China's economy, many countries started to pay more attention to China's market. Providing disaster aid to China can be a chance for success that results in disaster diplomacy and strengthened national image, which may create linkages between the people in the donor country and China, and benefit their business trading with China. On the contrast, the countries with greater GDP have the incentive to grant disaster aid to U.S. This can be explained by the fact that these countries have the ability to donate and take disaster-related diplomatic activities, though they do not have close trading relationships with U.S. Some of them have been shown to have implemented the disaster diplomacy.

The evidence has proven that geographies of generosity existed in the first stage of disaster aid, namely, the decision to grant disaster aid. However, in the second stage of disaster aid, no significant evidence shows that the neighbouring countries provided more supplies assistance to the disaster-stricken areas than other countries, though supplies assistance from neighbouring countries can be the most convenient and quick resource, and language and cultural barriers would be less obvious. Further more, in the third stage of the scale of donation in response to the destructive events is not significantly related to geographies of generosity according to the donor countries' response to the two disasters, too. Compared to the countries from Asia, Africa, America and Oceania, the disaster assistance from the European countries largely shows a form of cosmopolitanism.

Effective aid should meet the needs of the disaster-stricken countries. However, some supplies were unsolicited and unavailable. In the case of Hurricane Katrina, Sweden contributed telecommunication equipment and technicians to U.S., but they could not be used properly because of the lack of technical workers. In addition, valuable supplies and services — such as medicine and cruise ships — were delayed or declined because the government could not handle them. In some cases, foreign

supplies were wasted. The U.S. allies offered \$854 million in cash and in oil that was to be sold for cash, but only \$40 million has been used so far for disaster victims or reconstruction, according to U.S. officials and contractors. Therefore, a needs assessment must be carried out promptly by national authorities of the affected country. Donors should be informed immediately of the specific type of assistance that is or is not needed. It is important to build a global information network (GIN) that is capable of retrieving and fusing data into useful information for cash and supplies assistance. According to the findings from the two cases, if a global disaster relief resource support centre is built, it is better to be located in the countries with large population and GDP since they have the ability to store and deliver the disaster relief supplies.

Foreign assistance should not be a campaign from the perspective of effective assistance. Some countries with serious internal civil problems, such as Myanmar, Rwanda, Democratic People's Republic of Korea, Afghanistan, Timor-leste and Congo, donated cash or supplies to China or U.S. There are long-term disasters in these countries and the donations could be more effective if they were spent in their own countries.

However, in the aftermath of a devastating disaster, global responses to it, including donations in cash or in kind, rescue teams, supplies and diplomacy condolences, are important part of the news coverage of the disaster in the stricken-country, which may influence the public opinion related to the donors. Given the global impact of disasters, if the response is insufficient or absent, it may create a negative effect on the public opinion in the non-disaster-stricken country due to the expectations of the people in the disaster-stricken country, since non-government actors, including mass media, NGOs, and individuals always try to create and promote the process of disaster-related reconciliations. Even stricken by the Wenchuan Earthquake, China committed \$10 million donation to the Burmese relief effort after Cyclone Nargis. When one country is experiencing a devastating disaster, the people in another country are motivated to provide assistance to help the stricken-country get through the disaster if they have close trading relationships, irrespective as to whether the relationship is dominated by import or export. If the two countries have close trading relationships, donations to the disaster-stricken seem to be obligatory. After the Wenchuan Earthquake, Japan's timely and appropriate response resulted in some reconciliation in the public opinion of Chinese people despite previous and latent

conflicts.

A 7.0 earthquake hit southern Haiti on 13 January 2010 causing catastrophe in the poorest nation in the Western Hemisphere. In the days following the earthquake, many countries made fast response to Haiti in order to achieve an effective disaster relief effort. Haiti is the poorest country in the Western Hemisphere and was still recovering from the deadly 2008 hurricanes when the quake struck. Multitudes of earthquakes struck the beautiful city of Christchurch in New Zealand between September 2010 and December 2011, some of them deadly with devastating effects. Millions of people in Pakistan still need aid to recover from the 2010 floods. Did the international community have similar responses to these events, compared with the responses to Hurricane Katrina and Wenchuan Earthquake? Further research is needed to create the global paradigm for disaster response, hopefully where cosmopolitanism and humanitarianism take precedent to diplomacy and politics.

6. Acknowledgement

The authors are grateful to the editor and three anonymous referees for their helpful and constructive comments and suggestions that improved the quality of this paper. The National Natural Science Foundation of China (91024027, 61004108, 71121061) funded this research. The third author wishes to acknowledge the financial assistance of the Australian Research Council.

Table 1 Independent Variables Used in the Models

<i>Dimensions</i>	<i>Independent Variables</i>
Developmental Level	Dummy variable (=1 if the country is a developed country, 0 if a developing country)
Distance	Distance from the capital of disaster-stricken country, KM

Trading Relationship	Export to disaster-stricken country, million US\$
	Import to disaster-stricken country, million US\$
Economic Development	Gross Domestic Product (GDP), million US\$
	Per capita GDP, US\$
Information Development	Internet users per 100 population
	Television receivers per thousand inhabitants
Social Development	Population, 10 thousands people
	Unemployment rate (%)

Table 2 Determinants of the decision to grant disaster aid

Hurricane Katrina	Wenchuan Earthquake
Variables in the equation	Coefficient
Constant	-0.2841
Developmental level	1.2771
GDP	0.000001
Percentage Correct	69.50
Chi-square	36.9925
Sig.	0.0000
SE – standard error	
Sig - significance	

Table 3 Determinants of the foreign assistance responses

<i>Explanatory Variables</i>	<i>Cash and Supplies Assistance</i>	
	Hurricane Katrina	S
	Coefficient	
Intercept		-9.9011***
Developmental level		2.9948*
Distance from the capital of the disaster-stricken country		0.0004**
Export to the disaster-stricken country		-0.0003**
Import to the disaster-stricken country		0.0004*

GDP		0.00001
Per capita GDP		0.0000
Internet users per 100 population		-0.0191
Television receivers per 1000 inhabitants		0.0097**
Population		0.0004**
Unemployment rate		-0.2288

Number of observation	17	
Proportion of observation	0.0895	

Notes: The reference category is Cash Assistance (for Wenchuan Earthquake n=74; for Hurricane Katrina, n=58).

*, **, *** mean statistically significant at 10%, 5% and 1% level respectively.

SE – standard error

Table 4 Determinants of the size of disaster aid

<i>Explanatory Variables</i>	Hurricane Katrina	Wenchuan Earthquake	<i>Developed Countries</i>
	Coefficient	SE	Hurricane Katrina Coefficient
Constant	-1411.2014	1657.6974	203.62
Developmental level	-5498.45***	1945.7332	-477.20**
Distance from the capital of the disaster-stricken country	0.1383	0.1062	-0.0001
Export to the disaster-	-0.0224	0.0752	0.0227***

stricken country			
Import to the disaster-stricken country	0.0365	0.1105	-0.0060
GDP	-0.0004	0.0011	0.0001
Per capita GDP	0.1366**	0.0580	0.0165***
Internet users per 100 population	-19.0589	47.7921	-1.7380
Television receivers per 1000 inhabitants	5.7906	3.6254	-0.1792
Population	-0.0058	0.0378	0.0008

Unemployment rate	-25.3220	74.7608	-10.6130
Number of observations	107		125
R	0.3651		0.3793
R ²	0.1333		0.1439
Adjusted R ²	0.0431		0.0688
Sig.	0.1598		0.0498

*, **, *** mean statistically significant at 10%, 5% and 1% level respectively.

Sig. - significance

Table 5 Difference of continents in donations

Continents	Number of countries	Hurricane Katrina	Wenchuan Earthquake	Number of countries
		Number of donors	the amount of donations (million US\$)	

Africa	51	16	5.485	25
Asia	46	33	782.20	41
Oceania	13	6	10.28	8
Europe	41	33	43.289	36
North America	26	11	19.355	8
South America	12	7	1.73	6
Total	189	106	862.339	124

Note: we exclude U.S. and China from the sample.