

Media Coverage and Foreign Assistance:
The Effects of US Media Coverage on the Distribution of US Official
Development Assistance (ODA) to Recipient Countries

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Abstract

This paper uses a new dataset on US media coverage of developing countries to test the hypothesis that the media are an important determinant of US foreign aid flows, all else equal. Controlling for several other determinants of foreign aid distribution it examines whether or not the quantity of coverage in major US newspapers and television sources influenced the amount of official development assistance a country receives from the US from 1970-1994. It finds that when a natural disaster, epidemic, or war in a developing country is mentioned in a major US media source five times during a typical five-year period---or an average of once a year---that country receives roughly one percent more in US aid per capita over the course of the period than it would otherwise receive. This is the average effect across countries and over time, and by no means must hold true for any given country at any given time. For some countries, even a small amount of media coverage could be worth millions in aid. This result has direct implications for the cost effectiveness of media relations activities by both nongovernmental and governmental organizations interested in affecting aid levels.

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Introduction

Foreign aid allocation has long been part of US foreign policy, serving three purposes: meeting humanitarian need, increasing trade and economic development, and advancing US foreign strategic/political interests (Ruttan 4). According to the objectives of the US Agency for International Development (USAID), foreign aid promotes long-term and equitable economic growth and advances US foreign policy objectives by supporting economic growth agriculture and trade, global health, democracy building, conflict prevention, and humanitarian assistance.¹ While the amount of US foreign aid declined since the end of the cold war, the US continues to be a major donor. In 2002, the US distributed \$13.29 billion in official development assistance (ODA), making it the largest donor, by far, of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee (DAC) countries.² The twenty-two countries of the OECD-DAC, of which the US is a member, gave a total of \$58.27 billion in ODA. (OECD-DAC Report 1).

The allocation of foreign aid has become a hot topic over the last few years. President George W. Bush introduced his Millennium Challenge Account (MCA) in 2002, an ambitious pledge to increase ODA to countries that strive for good governance and democratization, among other things.³ The goal is to accelerate growth and reduce poverty in developing countries (Ibid. 1). Particularly since the terrorist attacks of September 11, 2001, many policymakers now see poverty reduction in developing countries as a part of the global war on terror; they believe that reducing poverty helps eliminate terrorist breeding grounds.

The general determinants of foreign aid allocations have been thoroughly studied over the last fifty years. It has been found that countries give foreign aid because of donor-country interests (such as trade or strategic concerns) and for recipient-need reasons (such as poverty, low health outcomes, and natural disasters). Alesina and Dollar's paper (2000) provided a comprehensive study on the effects of the classic determinants on foreign aid allocation. Not until recently, however, have "non-state" determinants been considered in the allocation of foreign aid.

There is also a rich body of literature that has found media coverage to have an effect on foreign policy decisions. Former UN Secretary General Boutros Boutros-Ghali once said, "CNN is the sixteenth member of the Security Council" (Minear et al. 4). The term "CNN effect" refers to public officials reacting to the news because it is seen as a reflection of public opinion. TV coverage can be particularly influential. This has been applied to the humanitarian crises of the 1990s in the former Yugoslavia and Somalia (Ibid. 58). An officer during the Clinton Administration stated of Somalia, "pictures of starving children, not policy objectives, got us involved, pictures of US casualties, not the completion of objectives, brought us out" (Ibid. 53).

Yet the relationship between these two bodies of research - the determinants of aid allocation and the effect of media on foreign policy - has not been well studied. Andrew Natsios, former Vice President of World Vision and current Administrator of USAID, stated "it is readily demonstrable

¹ The foreign policy objectives of USAID can be found at www.usaid.gov/about_usaid/

² Organization for Economic Cooperation and Development (OECD) Development Assistance Committee (DAC) Countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States

³ For more on the Millennium Challenge Account visit www.mca.gov

that media coverage of disasters profoundly effects both public opinion and the policymaking process” and that “media coverage...encourages Congress to spend taxpayer’s money on response” (Rotberg and Weiss 149). This supports the concept that money flows from one crisis to another and from one poor country to another, depending on what is the most publicized international event. For example, while Rwanda was receiving massive media attention and foreign assistance in 1994 after the genocide, nearby Sudan, which has long been one of the poorest and most famine-ravaged countries in the world, went largely ignored by the media, and received little aid from the US.⁴ As Mr. Natsios stated, “humanitarian crises invariably rise to prominence rapidly but remain on the radar screen only briefly...(we) cannot expect slow burning fuses like southern Sudan to capture attention in the same way as Rwanda’s genocide did in 1994” (Ibid. 185).

There is arguably no way for any one country to help every needy country. The US strives to allocate ODA according to its policy objectives. If it were found that an external factor, such as the media, was influencing the foreign aid allocation process, this would constitute an “imperfect” allocation of public resources.

Recently the two lines of research have converged. Quantitative studies by Van Belle and Hook (2000), Van Belle, Rioux, and Potter, (2001, 2004), and Drury, Olson, and Van Belle (2005), have examined the relationship between media coverage and foreign aid allocations. Their research shows positive quantitative evidence of a relationship between the quantity of media coverage (i.e. number of times country is mentioned in media outlets) and the amount of foreign aid a country receives. There are limitations, however, in their research design. The variables they use to measure “need” and “media” are limited and suggest a bias in their results. I will address this later.

This paper plans to follow a similar model used by the Van Belle studies and the Alesina and Dollar paper, but using a more comprehensive dataset and more variables. I will test the hypothesis that greater US media coverage of countries that receive aid results in more US aid to those recipients, *ceteris paribus*. I posit that the differences will be significant, controlling for the general determinants of aid allocation. By improving on the proxies used for media references and “need,” as well as incorporating other relevant variables from other studies, this paper will contribute to the body of literature concerning the effects of media on foreign aid allocations.

The policy implications of this study are strategic. The amount of ODA is limited, and if the effect of media coverage on foreign aid distribution is not statistically different from zero we could be confident that the amount of media attention a country receives is not diverting money from the generally accepted determinants of allocation. But, if media coverage has an effect on aid allocations significantly different from zero, while holding constant various proxies of recipient country characteristics relevant to stated US aid policy objectives, it would suggest that media coverage alone may be guiding US aid to places and events at difference with US objectives.

If it was found that the quantity of media coverage does have a significant effect on aid allocations, then it could benefit international NGOs, advocacy groups, and lobbyists that lobby Congress and the president for increased aid for a particular country or crisis. These groups would know the power of the media in regards to the real dollar amount return on a given media effort. This in turn could assist in shaping their communications and media strategy. By knowing the power of the

⁴ Rwanda, post-genocide, in 1995 received \$101 million in total ODA from the US. There were approximately 530 media hits concerning all “need” events for Rwanda in 1994. Sudan in 1995 received \$8 million in total ODA from the US. Sudan received approximately 95 media hits in US media outlets concerning all “need” events in 1994.

media they could focus their efforts on media strategies such as press releases, editorials, etc., and on a constant flow of news on all “needy” countries, rather than the flurry that is seen during humanitarian crises. Groups could use the media as a tool to try to ensure that countries and crises that need aid receive aid from the United States.

Background

From China in the 1800s to Iraq today foreign aid had played many roles in US foreign policy. The US provided a steady flow of economic aid to the Republic of China, after its establishment of Taiwan, during the nineteenth century. Since the organization of the Pan-American Union in 1890, technical and economic assistance to Latin American governments was seen as an integral piece to establishing a cooperative America's. The Export-Import Bank was established in 1934 to provide loans to support the expansion of US foreign trade. During World War II the US made large grants and extended credit to support its allies in Europe and Asia (Ruttan 3).

It was not until the late 1940s, with the Truman Doctrine, that economic assistance became an institutionalized part of US foreign policy. The Truman Doctrine (1947) established the principle of assistance to strengthen the economic, political, and military viability of countries that were regarded to be of strategic importance to the US (Ibid. 4). The Marshall Plan, also instituted in 1947, established the principle of huge transfers of resources to sustain the economic and political stability of Western European countries post WWII. The Point Four Program (1949) committed the US to using its technical and financial resources to "relieve hunger and misery" through the support of specific projects in agriculture, health, education, and related areas (Ibid. 5). These three plans highlight the main categories of the determinants of US economic assistance: 1) humanitarian/need 2) economic trade, and 3) strategic/political. This last reason was particularly prevalent during the Cold War and the fight to contain and reverse communism.

The 1960s ushered in the idea of long-term development in low-income countries, and with it the programs of the Kennedy Administration: Peace Corps, the Alliance for Progress, and the creation of the US Agency for International Development (USAID). In the 1970s, under the Nixon Administration and its New Directions policy, marked a change in foreign assistance policy, emphasizing recipient country participation rather than general resource transfers (Ibid. 94). The 1980s emphasized strategic foreign assistance to countries in order to fight the spread of communism. The mid 1990s, in response to cynical views on the effectiveness of foreign aid saw a decrease in ODA (OECD, 2003).

Between the late 1950s and mid 1990s, the US had provided over \$200 billion in economic assistance to the less developed countries of Latin America, Asia, and Africa (Ruttan 1). Most recently with the Bush Administration's introduction of the MCA in 2002, an overall increase in foreign aid is planned to reward those countries that show good governance and efforts to improve economic and social policies. It is approximated that the MCA could increase the Foreign Affairs budget by twenty percent.⁵

In short, foreign assistance has been an important part of US foreign policy, particularly in the latter half of the twentieth century. It has been used to further US interests but also to help the poorest countries fight poverty. Some estimate that in the less developed countries, the poorest 60% of the population earn 26% of national income. If a country received enough aid the lowest income earners could experience an increase in income. Based on the relationship between infant mortality and income, infant mortality could be reduced greatly, among other social benefits (Boone 29).

A growing body of researchers, including those at the Global Interdependence Initiative and the Center for Media and Public Affairs, have analyzed the role of the media in the foreign policy

⁵ Based on my calculation of \$5 billion from the MCA added to the approximately \$18 billion Foreign Affairs Budget

process.⁶ Analysts have recognized the influence of media on the will of the public and policy makers to support international interventions and investments (Bales, 3). Bernard Cohen, a scholar on the media and foreign policy, once stated that “it is impossible to separate the role of the press from policymaking”. He continued, “at times State Department policy is fashioned in direct response to press opinion” (Ibid. 15). Some scholars posit that the media acts as a “surrogate” for public opinion in the eyes of policymakers. Foreign policy officials, as stewards of the public, are thought to react to public opinion in making policy decisions. It is thought they will attempt to align their actions/policies with what they expect is the public’s perception, via the media, of the importance of a particular issue (Van Belle and Hook 321).

While it was once thought that policy “elite” regarded the general public as unsophisticated and therefore unworthy of having influence in the policy process, that attitude has shifted. Recent literature suggests a foreign policy institution more responsive to public opinion (Powlick 612). The media have been referred to as an “agenda-setter” or the “educator” of the American public on foreign affairs. What is at question is how the public reacts and responds to the media and how they then influence the decisions of policymakers. The underlying assumption is that more news devoted to foreign affairs would result in greater public understanding of and support for “enlightened” public policy (Bales 4). Is it purely coincidental that during the mid-1990s there was a decrease in US ODA, while there was also a decrease in foreign news reporting (Ibid. 4)?

This paper addresses the separate effect of the media on aid allocation. The media is able to turn a “beacon on one crisis over another, one area of the world over another” as Bernard Cohen stated. How that ability effects foreign aid allocation is at question (Ibid. 14). Public perception and media influence of “need” events (such as natural disasters, wars, epidemics) on policy decisions has recently come under scrutiny. There are numerous examples of foreign aid money flooding to the “hot” crisis that is in the news. Are these policy responses and decisions based on the major determinants of foreign assistance or does the media drive them?

⁶ For more information on the Global Interdependence Initiative visit <http://www.aspeninstitute.org/Programt1.asp?i=70&bid=0>. For more on the Center for Media and Public Affairs visit <http://www.cmpa.com/>

Literature Review

Much of the econometric research has focused on the distribution of ODA. ODA is defined as grants or loans to developing countries which are a) undertaken by the official sector; b) with promotion of economic development and welfare as the main objective; c) at concessional financial terms. Grants, loans, and credits for military purposes, as well as transfer payments to private individuals, are excluded from the amount of ODA a donor country gives. Emergency disaster assistance is included in the OECD-DACs definition of ODA (DAC Glossary). Most of these studies have focused on some or all of the classically accepted categories of the determinants of foreign aid allocation: 1) humanitarian/need, 2) strategic/political, and 3) economic/trade.

Davenport (1970), Hendersons (1971), and Wittkopf (1972) were some of the first researchers to use linear regression to test the determinants of aid allocation (Maizzels and Nissanke 880). In 1977, McKinlay and Little presented more sophisticated models of the allocation of foreign aid. They tested models of what are now commonly known as the donor-interest/recipient-need models. The donor-interest model (then referred to as the foreign policy view) included such variables that would fall under strategic/political and economic/trade motives such as: per capita gross domestic product, the size of the mining sector, strategic ties, and others. Some of the variables they tested under the recipient-need model (then referred to as the humanitarian view) were GDP, per capita GDP, per capita calorie consumption, and number of doctors per 100,000 people (60). They found that humanitarian criteria did not explain the allocation of US aid and that strategic goals of control and influence over other recipient countries dominated the explanation. Maizzels and Nissanke (1984) further expanded on the donor-interest/recipient need models, testing them on a larger sample size (more years) and on a slightly different set of variables. They found that the donor-interest model better explained the US allocation of bilateral aid⁷ than the recipient-need model. They stated this would reflect the greater influence of Cold War considerations by the end of the 1970s (Ibid. 887).

Other more recent studies like those of McGillvray and Oczokowski (1992), Meernick, Kruger, and Poe (1998), van der Veen (2001), and Berthelemy and Tichit (2002), continued to analyze the classic determinants of aid allocation by the US as well as other countries (i.e. Great Britain, Belgium, Italy, the Netherlands, and Norway). They introduced a two-stage process in the analysis, first determining the probability of a country receiving aid and then if they received aid, the amount they are allocated by the donor country. They have generally found that the classic determinants still apply, though Meernick et al., claimed that the strategic determinants waned after the passing of the Cold War, and van der Ween, found considerable support for humanitarian motivations. These studies have also introduced the problems with using OLS and the biases they may generate. They have promoted the use of probit, tobit, or Heckman two-step procedures in the analysis of aid allocation. It must be noted that these more recent studies have benefited from increased panel data to analyze.

In 2000, Alesina and Dollar published one of the most respected papers on the determinants of aid allocation. They found considerable evidence that the pattern of aid giving was dictated by political and strategic considerations, such as colonial links and economic alliances, and that humanitarian factors such as poverty levels had little influence. Specifically for the US, they found that the pattern of aid giving was heavily influenced by US interests in the Middle East (34).

⁷ Bilateral aid refers to transfers given from country to country rather than through a multilateral agency such as the World Bank or IMF.

Recent qualitative books, such as Minear et al. (1994) and Rotberg et al. (1996) examined the role of the media in humanitarian action and their possible effect in the foreign policy process. They discussed the triangular relationship between the media, humanitarian organizations, and governments, and touched on ways that these relationships could affect the amount of assistance allocated to a country.

Douglas Van Belle and a number of other researchers have recently built a small but growing literature on the quantitative relationship between the amount of media coverage a country receives and the amount of foreign aid and/or disaster assistance it is allocated (1998, 2000, 2001). Van Belle, Rioux, and Potter published a book in 2004 from these findings. A new study by Drury, Olson, and Van Belle to be released in May determined that New York Times coverage has a significant effect on the distribution of US foreign disaster assistance. They found that each story was associated with an additional \$594,057 in US foreign disaster assistance (2005). This is a substantial finding because the OECD-DAC includes disaster assistance in their total for donor ODA. The US provides a large amount of disaster assistance per year attributing for about 6% of their ODA from 2002-2003 (OECD-DAC: US Aid at a Glance). Their findings support the hypothesis that US media coverage has a strong influence on the distribution of US foreign assistance funds. This book along with their other studies all suggest, *ceteris paribus*, a positive relationship between the volume of media coverage/references a country receives in donor country media outlets and the amount of bilateral aid allocated to that recipient country.

My paper finds relevant the Van Belle et al. and Drury et al. studies, and is a timely addition to the recent publication of the book and journal article. I also try to address the flaws and limitations in their research designs. These studies limit the scope of media to print media, primarily focusing on one major newspaper in the donor country. For the US, this newspaper is the New York Times. This limitation omits other major newspapers and television. This could introduce omitted variable bias into the media variable. Also limited are some of the independent variables, particularly the proxies for recipient “need.” In many of the studies, “need” is defined strictly in terms of per capita GNP (Van Belle et al., 2004, 41). Thus, they introduce omitted variable bias to the model, excluding other relevant “need” factors such as natural disasters, political upheaval, wars, and epidemics that could effect distribution of US aid. Per capita GNP could stay relatively constant for a long period of time, but “need” could fluctuate in the case of a natural disaster or war.

I will improve and build upon these variables using the media database I created, other available databases, and the Alesina and Dollar data on the determinants of foreign aid allocation. I plan to expand on their variable for media coverage by including all of the newspapers in the US and the major television networks. I also plan to improve on their proxy for “need” by including controls for variables on “need” events such as natural disasters, political instability, the occurrence of wars, and epidemics. Using the Van Belle et al. general model to frame my study and introducing the variables Alesina and Dollar included in their study will provide a clearer picture on how and if media coverage effects the way foreign aid is allocated by the US.

This study will contribute to the growing body of literature on the role of the media in determining aid allocations, as well as to the literature on the general determinants of foreign aid allocation. This paper will also provide a response and continuation to the recent quantitative studies of Van Belle et al. Studies on “other” determinants of foreign aid allocation are starting to gain ground [see Lahiri and Raimondos-Moller (2004), on the fungibility of aid]. Alesina and Dollar stated that while “there is some general agreement about what matters for aid giving...there is virtually no solid evidence on the importance of different variables” (35). In light of this, studying the effect of

the media on foreign aid allocations will prove useful for the media, governments, aid agencies and the organizations that lobby them. By better understanding the role of the media in foreign aid decisions, stakeholders can create better aid decisions, different communications strategies, and broader international news coverage.

Conceptual Model

I hypothesize that the amount of media coverage an aid recipient country receives in US media sources (an independent variable X1), controlling for other determinants of foreign aid allocation (other X's), is positively and significantly related with the amount of foreign aid per capita that the US distributes to that country (dependent variable, Y).

This research question attempts to quantitatively assess the anecdotal hypothesis that “money flows from one hot crisis to another.” I posit that media coverage has a positive effect on the allocation of foreign aid, meaning that it is not all allocated according to the generally accepted determinants of foreign aid such as humanitarian/need, trade/economic, and strategic/political reasons.

The main dependent variable of interest is the average amount of ODA per capita distributed by the US to an aid recipient country over five five-year periods from 1970-1994. I use ODA per capita because that is the dependent variable that Alesina & Dollar used in their 2000 study. The values are reported in millions of dollars in 1985 constant dollars.

The main independent variables of interest can be divided into five categories.

Figure 1: Independent Variables of Interest

Category	Variable	Description
Media	Mndnum	Mean # of media occurrences on natural disasters for each period
	Mmedepinum	Mean # of media occurrences on epidemics for each period
	Mwarmednum	Mean # of media occurrences on wars for each period
	Allmedia	The sum of the mean # of media occurrences on natural disasters, epidemics, and wars.
Humanitarian/ Need	RGDPPC	Real GDP Per Capita
	Mtotpolinstabnum	Mean # of political instability events, for each period
	Mdisasnum	Mean # of natural disasters, for each period
	Mepidemnum	Mean # of epidemics, for each period
	Dumwarhap1	Dummy variable for occurrence of war during period
Trade/ Economic	Open	Level of trade openness (Sachs-Warner Index)
Strategic/ Political	DumEgy	Dummy if Egypt
	DumISR	Dummy if Israel
	FrJpn	% of times in which the recipient has voted in the UN the same as Japan
	Democracy⁸	Level of Political Rights and Democracy
	Colnusa	# of years not a colony of the US
	Cols	# of years as a colony of any colonizer since 1900
	LNCOLSUSA	Log of # of years as a Colony of USA since 1900
	FRUSA	% of times in which the recipient has voted in the UN the same as the USA
Other	Pop	Population
	Religion	Major religion of country (Muslim, Roman Catholic, or Other)

⁸ I multiplied the Freedom House (FH) index by negative one to indicate that a higher value means “more free”. This means that a value of 7 means “most free” down to a value of 1 indicating “least free.” I did this so that my coefficient on the democracy variable would be positive and easier to interpret.

The main independent variables of interests in this study are the effects of the media variables on US ODA per capita. I expect that there will be a positive relationship between the media independent variables and the amount of ODA per capita a country receives from the US. I posit that increased media coverage of a country (X1) causes the public and policymakers to become more aware of the country. This increased level of awareness drives policy makers (both due to their own awareness and due to pressure by an informed public) to commit increased amounts of foreign aid (Y) to that country. I would expect to observe that, holding all other variables constant, every five additional media articles in US news sources about Country A would be, on average, associated with a percentage increase in foreign aid distributed to Country A. Using OLS, I would expect to find data points fairly evenly dispersed around a regression line with a positive slope. If this is indeed the case, then I would not expect to find media coverage to have a zero or negative effect on the allocation of US ODA per capita.

The literature concerning the allocation of foreign aid has generally agreed upon three categories of determinants. These are “humanitarian/need,” “economic/trade,” and “strategic/political.” In regards to the other control variables I expect for there to be a positive relationship between all of the “humanitarian/need” independent variables and the dependent variables except for GDP per capita, for which I expect there would be a negative relationship. I believe that “need” as determined by “need” events occurring in a country, such as wars, natural disasters, and epidemics, is positively related to the amount of aid a country receives. This is based on the premise that one determinant of aid is “humanitarian/need” based and that the more “need” one has, the more money the country should receive.

For the “trade/economic variable,” I expect that higher levels of trade openness will have a positive effect on ODA levels. For the “other” independent variables, I expect population to be positively associated with ODA. I expect Roman Catholic countries to receive higher levels of ODA per capita than Muslim countries in regards to the “religion” variable. I expect that the percentage of the population that is part of “other religions” will not have a significant effect on the amount of ODA per capita they receive. GDP per capita is a reflection of the per capita income and the country’s wealth. I would expect its relationship with the amount of foreign aid distributed to a country to be negatively related; the higher per capita income a country has, the less foreign aid they will receive. These predictions are also supported by the results found in Alesina and Dollar (2000).

I expect that the “strategic/political” variables will be associated with a positive relationship with US ODA. I expect that higher levels of democracy and political rights will be associated with higher levels of US ODA per capita. The US has a history of rewarding countries that are more democratic. I expect that the dummy variables for Egypt and Israel will be positive and significant since those two countries have long been the largest recipients of US ODA. Since the US, unlike other major donor countries, does not have a long history of colonization. I expect that those countries that were colonized by the US will receive more US ODA, while the level of ODA for those countries that were not colonized by the US would not be substantially influenced. I would expect that those countries that vote with the US in the UN would be associated with positive levels of ODA, while those countries that vote with Japan, would not be associated with significant changes in US ODA. These predictions are supported by the Alesina and Dollar results.

There are other factors that could effect ODA allocation such as personal interests/agendas of policymakers, geographic location of the country, and the number of immigrants from the recipient

country residing in the US. But the literature to this point has not considered these factors, so I will not be including them in my analysis. These variables should be subject to further study in the future.

Also, since the US ODA data is in per capita terms, extreme outliers with regards to population size and/or size of the country could affect the amount of ODA one receives. For example China has the largest population in the world and an extremely large land mass and Singapore, with a very large economy, has a very small population in a small country. Even if China receives significantly more ODA than Singapore, it may not be in proportion to their comparative sizes and populations. I would be concerned with observations of countries like China, Singapore, and India, among others, where the population sizes are outliers. If these countries are found to be extreme outliers, I may be justified in dropping them from the dataset in my OLS regressions.

There is also the possibility of omitted variable bias if there is a country characteristic that is 1) related to a US foreign policy goal, 2) not in my database of country characteristics and 3) correlated with my media coverage variables. One possible example of this would be a “friend in the war on terror” variable. If providing aid to an ally in the “war against terror” was a foreign policy goal and this variable was not included in my dataset, and the media devoted more attention to this ally country because of its strategic importance to the US, leaving out this variable could bias my results. I would expect the bias to be upwards due to my expectation that an ally in the war on terror would receive more aid as well as increased media attention of that country that would be associated with increased aid. This particular variable would not be a problem because my dataset only spans the period of 1970 to 1994. This time period does not cover the current “war against terror.” But this example does suggest that there are possibly relevant country characteristics that could have been left out of my model. This could lead to omitted variable bias on my dependent variables. This problem is inherent to any quantitative analysis; every possible control variable cannot be included in the model. But I attempt to minimize the problem of bias by including as many of the country characteristics related to policy goals that have been used in the previous aid literature as possible, as well as a number of characteristics that have been excluded.

My conceptual model could be subject to problems of reverse causality. It could be argued that an increased amount of foreign aid for a country could in turn drive an increased level of media coverage for that country. For example, media coverage of the Ethiopian famine of the mid 80s played a significant role in the US government’s humanitarian intervention according to Andrew Natsios (Rotberg and Weiss 163). US ODA to Ethiopia increased from \$1 million in 1982 to \$143 million in 1985, according to OECD-DAC figures. US intervention, both militarily and economically resulted in a flurry of media coverage concerning the humanitarian crisis and the efforts to assist the Ethiopians. This potential problem should be addressed in future studies using Granger Causation to attribute the causal direction of media coverage causing aid allocation rather than aid allocation causing media coverage. Drury et al. touch on the problem of reverse causality in their paper (2005). Examining this issue is outside of the scope of this paper so will not be thoroughly addressed.

The independent variables in this study would be difficult to change by any policy mechanism. The media coverage variables could be changed if an agency, such as USAID, required every country office to produce media stories on a constant basis concerning their country. Another policy change could be to require each country office to maintain local monitoring staff, so that in the case of an emergency and the removal of most USAID, there are still “on-the-ground” staff that can monitor and report on the situation. More than policy intervention, NGOs, UN agencies, advocacy groups,

etc. could reform their fundraising/communications strategies to include more press releases, a more consistent flow of news about countries, and better relationships with the journalists and the media. This cannot be forced on an agency so cannot necessarily be labeled a policy change. Also, the amount of ODA a country receives from the US is primarily a foreign policy and appropriations budgetary decision. This indicates that the ODA decisions are highly variable to political influences. Like other congressional budgetary items, it is difficult to change.

Data Description

Alesina and Dollar Data Set

I received the data set from Alesina and Dollar used in their 2000 paper and used much of their data in my analysis. Their data is cross sectional panel country data covering 180 aid recipient countries and 21 donor countries over the time period of 1960-1994. I limited my data set to data from 1970-1994. This data set provides many of the control variables as well as data for my dependent variable. They used secondary data collected from a number of sources. For data on bilateral aid flows they used the data reported by the DAC of the OECD. They converted the flows into constant 1985 dollars and divided the time period into five groups of five-year averages starting from 1970-1974 and ending in 1990-1994. For trade openness they used a zero-one index developed by Sachs and Warner. For measures of democracy and civil liberties, they used indices created by Freedom House. For indications of colonial history, they used data collected by the Central Intelligence Agency of the US. For UN voting records they used data collected by the Inter-university Consortium for Political and Social Research. For population and income they used data from Summers and Heston. This data set did not include the religion data. It was received from the researchers at a different date and merged with this data set. It contains data on religions from 1980. This discrepancy on data may contribute to some differences in results.

Since their study looked at the behavior of all aid donor countries, I will be using a sub-sample of their data set and only the data relevant to the US. Some limitations inherent to studies of foreign aid are that there may be zeros for observations since not every country gives foreign aid to every country, in every year, as well as zeros for other variables like FDI.

After creating five periods of five-year averages for all of the other variables in the following data sets, they were merged with the entire Alesina and Dollar dataset described above. All of the period-level data in my dataset are presented in five periods of five-year averages each covering 1970-1994.

Media Dataset

This new dataset I created provides data for the explanatory independent variables of interest. I have collected this data from two secondary sources: Lexis Nexis Academic (2004) and The Vanderbilt Television News Archive (2004). The dataset includes cross sectional country data on all of the aid recipient countries in the Alesina and Dollar dataset and covers the same time period from 1970-1994.

Since I was interested in data concerning the US, I only collected data on US media sources. For newspaper sources I used Lexis Nexis to collect the raw output that each search term yielded. I transferred the raw output into excel spreadsheets so that the results could be aggregated up to correspond with the five-year averages used in the Alesina and Dollar dataset. The sources only include US newspapers and include sources from the four regions as determined by Lexis Nexis. The four regions are Midwest, Northeastern, Southeast, and Western. They include the major newspapers such as the New York Times, the Washington Post, and the Boston Globe, as well as many of the smaller regional or local newspapers located in each region. To account for television news coverage I searched for the same search terms described below, using the Vanderbilt Television News Archive. The Television News Archive collection at Vanderbilt University is the world's most extensive and complete archive of television news. The collection holds more than

30,000 individual network evening news broadcasts from the major US national broadcast networks: ABC, CBS, NBC, and CNN.

I created four different media variables using three different sets of search terms in each database. For “mwarmednum” I used the search terms “country name and crisis and war”. For “mndnum” I used the search terms “country name and natural disaster or flood or hurricane or earthquake or famine or drought.” For “mmedepinum” I used the search terms “country name and crisis and epidemic.” I chose these natural disasters and the term epidemic because they were often cited in USAID’s FY 2003 OFDA report as events to which USAID responded. The variable “allmedia” is the aggregation of the three aforementioned variables. For each search term in Lexis Nexis Academic I restricted my search to “headlines, lead paragraph(s), and terms.” For the Vanderbilt Television News Archive I used the same search terms in their general search engine. I summed the results from the Lexis Nexis search with the Vanderbilt Television News Archive search to create a single value for media coverage for each particular search term. For each period I report the five-year mean for the number of media hits during the period.

A potential problem is that my data set assumes that TV news coverage and newspaper coverage are weighted the same; it may be argued that the individual effects of the different types of coverage are not equal in weight. I summed the television and newspaper quantities to make a single value for each variable, so they are weighted the same in this database.

CRED-EM-DAT Disaster Database

This Emergency Events Database (EM-DAT) is maintained by the World Health Organization (2004). It contains data on the occurrence and effects of over 12,800 mass disasters and epidemics in the world from 1900 to present. This data set provides control variables for the annual number of natural disasters (“mdisasnum”) and epidemics (“mepidemnum”) per country as proxies for “need” for all of the aid-recipient countries included in the Alesina and Dollar data set.

A possible limitation of this dataset is that since I aggregate all of the disasters for a country to produce a total number of disasters per year I do not account for the difference in types of disasters; different types of disasters that vary in severity could effect the level of “need” a country would experience, as a result of the disaster.

Political Instability Dataset

This secondary dataset provides data on political instability in regards to numbers of assassinations, general strikes, guerrilla warfare, government crises, riots, and anti-government demonstrations that occurred in all of the countries in the world. It is cross-national time-series data and was produced by Arthur S. Banks (2002) and is distributed by Databanks International, New York City. The variable “mtotplinstabnum” is the aggregate of political instability events that occurred in a given country. This data will provide a proxy variable for country “need.”

Some limitations of this dataset are that, like the disaster data, there is unfortunately (and fortunately) many zero’s meaning that there were many observations where there was no political instability. Also, there is missing data for a number of countries like Russia and Trinidad and Tobago to name a few. Lastly, the time periods covered for each country varies. For most countries, there is data that covers the time period of interest, but there are a few countries that have data starting after 1970, such as Angola (starting in 1975) and Antigua (starting in 1981). This may be a problem when including this variable in the final merged dataset.

COW-2

Correlates of War, collected by the Pennsylvania State University, Correlates of War Project contains data on intrastate wars for all countries from 1816-1997 (2000). I will be limiting my data to those events occurring over 1970-1994. This data set will provide a dummy variable on the occurrence of war in a country during a given period. It will provide another control variable for the occurrence of wars, “dumwarhap1” as a proxy for “need.”

A limitation with this data is that since I create dummy variable on the occurrence of war I do not differentiate between the variance in the severity of a war. This would weight the effects of a war evenly. This could inequitably skew the level of country “need” created by war if the severity of wars varied greatly.

Statistical Models and Analysis Plan

My analysis consists of using OLS regressions and tests of robustness one to address the question: *does the quantity of media references, over time, in a donor country, holding all other determinants of aid allocations, affect the amount of foreign aid recipient countries receive from the US?*

I propose that if a “need” event occurs in a country and media coverage occurs but does not significantly effect aid flows to that country, then aid is being distributed efficiently. But if the actual media coverage of a “need” event, after controlling for the occurrence of the “need” event, is associated with a significant effect on the distribution of aid, then we could propose that the media coverage, not need or other determinants, is determining the flow of aid.

I first examine aid flows and media references, and other relevant variables, covering the time period 1970 to 1994. The log of aid flows is my dependent variable, and the different variables representing the amount of media references (the total print and TV) are my main independent variables of interest. I include other relevant independent variables according to the Alesina and Dollar (2000) study and other variables I deem appropriate. I use OLS in my examination because I will be looking at the overall effect of media references on the amount of aid a country receives. I am not interested in first examining the probability of a country receiving aid and then the amount of aid they receive, as other studies have done. This is why I am using OLS rather than tobit or probit.

Prior to running any regressions, I create a correlation table containing the media coverage and “need” variables and their correlation with US ODA per capita distribution. This figure is below:

Figure 2: Correlation Between Log of US ODA per Capita, “Need” and Media Coverage variables

		Aid	Need				Media			
		LNOdausa p1pc	Mtotpolin -stabnum	Mepidem- num	Mdisasnum	Dumwarh ap1	Mmedepi- num	mndnum	Mwarmed- num	allmedia
Aid	LNOdausa p1pc	1	-0.0674 p=0.134	-0.0956 p=0.0334	-0.235 p<0.0001	0.0141 p=0.757	0.0475 p=0.292	-0.0731 p=0.104	0.0305 p=0.499	-0.0484 p=0.283
	Need	Mtotpolin stabnum	-0.0674 p= 0.134	1	0.260 p<0.0001	.458 p<0.0001	0.353 p<0.0001	0.337 p<0.0001	0.317 p<0.0001	0.150 p<0.0001
Mepidemnum		-0.0956 p=0.0334	0.260 p<0.0001	1	0.580 p<0.0001	0.155 p<0.0001	0.423 p<0.0001	0.273 p<0.0001	0.0227 p=0.413	0.197 p<0.0001
Mdisanum		-0.235 p<0.0001	.458 p<0.0001	0.580 p<0.0001	1	0.179 p<0.0001	0.441 p<0.0001	0.373 p<0.0001	0.0801 p=0.0162	0.286 p<0.0001
Dumwarhap1		0.0141 p=0.757	0.353 p<0.0001	0.155 p<0.0001	0.179 p<0.0001	1	0.219 p<0.0001	0.201 p<0.0001	0.122 p=0.0002	0.199 p<0.0001
Media	mmedepinum	0.0475 p=0.292	0.337 p<0.0001	0.423 p<0.0001	0.441 p<0.0001	0.219 p<0.0001	1	0.618 p<0.0001	0.428 p<0.0001	0.660 p<0.0001
	Mndnum	-0.0731 p=0.104	0.317 p<0.0001	0.273 p<0.0001	0.373 p<0.0001	0.201 p<0.0001	0.618 p<0.0001	1	0.394 p<0.0001	0.837 p<0.0001
	Mwarmednum	0.0305 p=0.499	0.150 p<0.0001	0.0227 p=0.413	0.0801 p=0.0162	0.122 p=0.0002	0.428 p<0.0001	0.394 p<0.0001	1	0.831 p<0.0001
	Allmedia	-0.0484 p=0.283	0.288 p<0.0001	0.197 p<0.0001	0.286 p<0.0001	0.199 p<0.0001	0.660 p<0.0001	0.837 p<0.0001	0.831 p<0.0001	1

Stage 1: Cross Country Analysis

I use a five step process to test the independent effect of media references on aid flows to recipient countries using OLS on the pooled cross sectional data set of aid recipients and aid donors.

Step 1: Using Alesina and Dollar’s original data set, I reproduce the results of their 2000 study, as it relates to total bilateral ODA from OECD DAC countries and total bilateral US ODA per capita. This can be expressed by equations (1) and (2):

Equation 1:

$$\text{LN}(\text{Total OECD ODA}_{i,t}) = B_0 + B_1\text{LN}(\text{initial income}) + B_2(\text{initial income})^2 + B_3\text{LN}(\text{population}) + B_4\text{LN}(\text{population})^2 + B_5\text{Openness} + B_6\text{Democracy} + B_7\text{US UN Friend} + B_8\text{Japan UN friend} + B_9\text{LN}(\# \text{ of years as colony}) + B_{10}\text{Egypt} + B_{11}\text{Israel} + B_{12}\text{Muslim} + B_{13}\text{Roman Catholic} + B_{14}\text{Other Religion} + u_{i,t}$$

Equation 2:

$$\text{LN}(\text{US ODA Per Capita}_{i,t}) = B_0 + B_1\text{LN}(\text{initial income}) + B_2(\text{initial income})^2 + B_3\text{Openness} + B_4\text{Democracy} + B_5\text{US UN Friend} + B_6\text{LN}(\# \text{ of years as colony}) + B_7\# \text{ of years not a colony of the US} + B_8\text{Egypt} + B_9\text{Israel} + B_{10}\text{Muslim} + B_{11}\text{Roman Catholic} + B_{12}\text{Other Religion} + u_{i,t}$$

Note that in equation (2) and the following equations, the variables for population are dropped because US ODA, the dependent variables, is expressed in per capita terms. I use equation (2) as the model for the rest of the regressions.

Step 1.5: I add data on mean number of total political instability events, “mtotpolinstabnum” covering the same time period (five-year averages, 1970-1994) to equation (1) as an independent variable. I include this variable to control for the influence of political instability events on the distribution of US ODA per capita. This coefficient will provide the partial effect of how this new variable affects the flow of US ODA per capita. I want to determine if this variable is significant; if it is significant, I will include it in the following regressions. This equation can be expressed in equation (3) below.

Equation 3:

$$\text{LN}(\text{US ODA Per Capita}_{i,t}) = B_0 + B_1\text{LN}(\text{initial income}) + B_2(\text{initial income})^2 + B_3\text{Openness} + B_4\text{Democracy} + B_5\text{US UN Friend} + B_6\text{LN}(\# \text{ of years as colony}) + B_7\# \text{ of years not a colony of the US} + B_8\text{Egypt} + B_9\text{Israel} + B_{10}\text{Muslim} + B_{11}\text{Roman Catholic} + B_{12}\text{Other Religion} + \mathbf{B_{13}\text{Political Instability}} + u_{i,t}$$

I test the null hypothesis that $B_{16}\text{mtotpolinstabnum}$ will equal zero. I posit that we will reject the null hypothesis and that B_{16} will be positive and statistically significant.

Step 2: I add data on the three “need” variables, epidemics, natural disasters, and wars, for aid recipient countries covering the same time period, to equation (3). Here I will run four regressions which can be expressed in equation (4). Each individual equations includes data on the “need” variables “mtotpolinstabnum” (occurrences of political instability), I will run three regressions, each with one individual “need” variable to determine the partial effect of that particular variable on the distribution of US ODA per capita. I will also run one regression that includes all three “need” variables to determine the partial effect of each variable when other control variables are included in the equation. The α on the term “need” represents the partial effect of the different “need” variables.

Equation 4:

$$\text{LN}(\text{US ODA Per Capita}_{i,t}) = B_0 + B_1\text{LN}(\text{initial income}) + B_2(\text{initial income})^2 + B_3\text{Openness} + B_4\text{Democracy} + B_5\text{US UN Friend} + B_6\text{LN}(\# \text{ of years as colony}) + B_7\# \text{ of years not a}$$

colony of the US + B_8 Egypt + B_9 Israel + B_{10} Muslim + B_{11} Roman Catholic + B_{12} Other Religion + B_{13} Political Instability + α_{14} **Need** + $u_{i,t}$

I test the null hypothesis that the α on each “need” variable in equation (4) will equal zero. I posit that we will reject the null in each case and that each coefficient will be positive and significant. I suspect that “need” will be positively correlated with the amount of ODA per capita a country receives from the US.

Step 3: I add data on media coverage of the three “need” variables. I do this to determine the partial effect of media coverage of these “need” events, alone, on the distribution of US ODA per capita. I run five regressions: one for each of the three media “need” variables, one combining all three, and one using the aggregate media variable “allmedia”. These equations can be expressed in equation (5). The α on the term “media” represents the individual equations that determine the partial effect of media coverage on US ODA distribution.

Equation 5:

$$\text{LN(US ODA Per Capita}_{i,t}) = B_0 + B_1\text{LN(initial income)} + B_2(\text{initial income})^2 + B_3\text{Openness} + B_4\text{Democracy} + B_5\text{US UN Friend} + B_6\text{LN (\# of years as colony)} + B_7 \# \text{ of years not a colony of the US} + B_8\text{Egypt} + B_9\text{Israel} + B_{10}\text{Muslim} + B_{11}\text{Roman Catholic} + B_{12}\text{Other Religion} + B_{13}\text{Political Instability} + \alpha_{14}\mathbf{Media} + u_{i,t}$$

I will test the hypothesis that the α on each media coverage variable will equal zero. I posit that I will reject the null hypothesis and that the α 's for each media variable will be positive and significant. I posit that media coverage alone does influence the distribution of US ODA per capita.

Step 4: I now include both the “need” variables and the variables expressing the media coverage of the “need” events to determine the partial effect of the media coverage, after controlling for the occurrence of the “need” event. I will run four regressions. Three of the regressions will include the control variables, one “need” variable and its corresponding media variable. The fourth regression will include all three of the “need” variables and the “allmedia” variable. The equations can be expressed in equation (6). The α represents the coefficient on need and the delta represents the corresponding media coverage coefficient.

Equation 6:

$$\text{LN(US ODA Per Capita}_{i,t}) = B_0 + B_1\text{LN(initial income)} + B_2(\text{initial income})^2 + B_3\text{Openness} + B_4\text{Democracy} + B_5\text{US UN Friend} + B_6\text{LN (\# of years as colony)} + B_7 \# \text{ of years not a colony of the US} + B_8\text{Egypt} + B_9\text{Israel} + B_{10}\text{Muslim} + B_{11}\text{Roman Catholic} + B_{12}\text{Other Religion} + B_{13}\text{Political Instability} + \alpha_{14}\mathbf{Need} + \delta_{15}\mathbf{Media} + u_{i,t}$$

I will test the null hypothesis that the δ 's on the media variables after controlling for the occurrence of the “need” events, will equal zero. I posit that the α 's on the “need” variables and the δ 's will be positive and significant. This reveals whether after controlling for occurrence of the “need” events, if the quantity of media coverage of these needs events, affects the amount of US ODA per capita a country receives.

Step 5: I will run the same regressions used in step 5 but will drop influential observations if it is deemed justifiable to drop them. It may be justifiable to drop certain observations if it determined that particular observations are obeying different rules than the relationship I suggest.

Results

The following tables provide OLS regression results for 1. Alesina and Dollar's (A&D) results from the 2000 study, 2. my replication of the A&D results using their dataset, 3. the inclusion of the "need" and "media coverage" variables to their original dataset, and 4. the regression results after dropping influential observations. These regressions results show the effect of media coverage and the additional need variables on the distribution of ODA, controlling for the general determinants of ODA used in A&D's study. The data covers the time period from 1970 to 1994 and uses mean values for each five-year period for each applicable (non-categorical and non-nominal) variable covering the span. In this regard USA ODA per capita is the mean value of ODA per capita distributed to a recipient country for each five-year period. This applies the same to all other variables. For example, the media coverage of epidemics variable represents the mean number of epidemics that occurred in a country during each five-year period. A change in one for the mean value would correspond with a change of five in the number of epidemics that occurred during a given period.⁹

Alesina & Dollar Results and Replication

Table 1 represents my attempt at replicating A&D's OLS regression results from their 2000 study. I received the dataset directly from the researchers, but there is one discrepancy. The data on the religion variables is not the same as what was used in their study. The dataset I received did not include data on religion. I received data on religions at a later time and merged it with their dataset. I was informed that this religion data could be different from the religion data used in their study. Indeed the religion dataset showed that there were some differences: there was no data on Animist or Atheist included, while A&D mentioned these variables in their study. This difference in data is not a major concern because data on religious representation in a country does not vary greatly from year to year. But these inconsistencies may have contributed to some of the differences in coefficient on the religion variables.

The first three columns show regressions using the log of total bilateral ODA from OECD DAC countries as the dependent variable. Column 1 presents the results found in A&D's study. They reported t-statistics in parentheses. To maintain continuity with my results, I calculated the standard error for each coefficient and reported those values in parentheses. Column 2 shows my replication of A&D's results using the dataset they provided with the later provided religion data. The direction and the statistical significance of the coefficients are almost identical. The only inconsistency is with the religion variables. I produce a positive and statistically significant coefficient for "Muslim" while A&D produced a negative and insignificant coefficient. I also produce a significant coefficient at the 10% level for "Roman Catholic" while A&D produced an insignificant coefficient. I am not certain of the reasons for these differences but I attribute them to the different data sets that were used for the religion variables between my study and the original A&D 2000 study.

Column 3 shows the same regression as in column 2 but includes a "need" variable representing the mean number of political instability events per year that occurred within a given country during each five-year time period. I include this variable to control for the effect of political instability in a

⁹ An increase of one in the mean number of epidemics, in this case, is associated with five additional epidemics. Since each period represents a five-year average, five epidemics divided by five years equals an increase of one in the mean number of epidemics in the period. This explanation applies in the interpretation of the other media and need variables except for the dummy variable on the occurrence of war.

country as a possible determinant of ODA distribution as a “need” variable. I did not have a corresponding “media coverage” variable for political instability. But I still want to control for any possible omitted variable bias that may occur by leaving out this political instability variable. I found this variable to be statistically insignificant and to have no effect on total bilateral ODA distributed by OECD DAC countries.

Columns 4-6 of table 1 show regressions using the log of total bilateral US ODA per capita as the dependent variable. Column 4 presents the results found in A&D’s study for US ODA per capita. A&D reported t-statistics in parentheses. As mentioned before, to maintain continuity with my results, I calculated the standard error for each coefficient and reported those values in parentheses. For the income variable, A&D reported the “elasticity of aid with respect to income calculated at the mean income” (47). They did not report a t-statistic or a standard error with their elasticity coefficient. They also did not specify if they included the logarithmic and/or the quadratic of the income variable in their regression model. Column 5 shows my replication of A&D’s results using the dataset they provided with the later provided religion data. To produce results similar to those of A&D, I include the logarithmic and quadratic of the income variable in my regression model. The direction and statistical significance of most of the coefficients are almost identical. I did produce some different results though in a few instances. My coefficient for the log of number of years a country was a colony of the US was smaller (0.0835) and not significant unlike that of A&D. My coefficient for the number of years a country was not a colony of the US was smaller (0.0285) and significant at the 1% level unlike that of A&D who reported a larger (0.0800) and insignificant coefficient. Again, my religion variables produce slightly different results than A&D. All of my religion variables are significant to at least the 5% level, while A&D reported an insignificant coefficient for the “other religion” variable. I again attribute the differences for the religion variables to the fact that I used different data for these variables than A&D used in their original study. Column 6 shows the regression results including the “need” variable representing the mean number of political instability events per year during a given period. This coefficient is negative and highly significant. This suggests that this variable of “need” is a significant determinant for the distribution of US ODA per capita. Because this variable is highly significant, I include this variable in my regressions in Tables 2-4.

My results show that the dataset and model I use are similar to those used by A&D. This gives me confidence in using this dataset and similar models in the following regressions.

Need Variables

Table 2 shows regression results using log of total US bilateral ODA per capita as the dependent variable and including different “need” independent variables. Column 1 shows the results of including the mean number of epidemics per year in a given period as an independent “need” variable. The coefficient for this variable is negative and significant at the 1% level. This suggests that controlling for all other variables in the model, an increased mean number of epidemics in a recipient country is associated with a negative effect on the amount of ODA per capita a country receives from the US. The negative sign may reflect the unpredictable nature of an epidemic. US ODA may not be able to react immediately to the event and the US subsequently provides less ODA until the epidemic subsides. Furthermore, in the wake of an epidemic, other US agencies, such as the National Institutes of Health (NIH) or the Centers for Disease Control (CDC) may react with assistance.

The negative sign on this coefficient does not intuitively make sense. One would predict that a country that has more epidemics would receive more aid to combat the prevalence of epidemics.

But it is possible that there might be reverse causation in the relationship between the occurrence of epidemics and US ODA per capita. Rather, the relationship might be that increased US ODA assists countries in preventing epidemics from breaking out by funding efforts such as improved health infrastructure, increased access to health facilities, medical supplies, pharmaceuticals, and technology. The negative sign on the coefficient would make sense in this situation: countries with a lower mean occurrence of epidemics, due to prevention measures, received a higher level of US ODA per capita in the previous period. Examining the possibility of reverse causation in the relationship between occurrence of epidemics and US ODA is outside the scope of this study. It should be further studied in future research.

Column 2 shows the result of including the mean number of natural disasters per year in a given period as an independent “need” variable. The coefficient for this variable is negative and highly significant at the 1% level. This suggests that, controlling for all other variables in the model, an increase in the number of natural disaster in a country is associated with a negative effect on the amount of ODA per capita a country receives from the US. The negative sign on this coefficient is also not intuitive. One would predict that the more natural disasters that a country experiences the more ODA they would receive from donor countries. But the coefficient shows the opposite relationship. One possible explanation derives from a limitation in the dataset. Because the data is expressed as five-year averages for each period it does not distinguish between natural disasters that may have occurred earlier or later in a given period. Suppose a significant number of disasters occur later in a period (t) and the country does not receive ODA for reconstruction until the beginning of the next period (t + 1). This would reflect a negative relationship between the number of disasters and the amount of ODA the country received. In this example there would be more ODA in period (t + 1), during which occurred fewer disasters. The ODA would actually be responding to the disasters in period (t). Future research using annual data could address this issue further.

Column 3 shows the result of including a dummy variable for the occurrence of war during a given period as an independent “need” variable. The coefficient for this variable is positive and significant at the 5% level. This suggests that US ODA per capita increases for a country where a war occurs. The US may use increased ODA to attempt to prevent the war in the years following the outbreak of a war. Also, the US may use ODA to provide reconstruction and recovery assistance to a country in the wake of war. In either situation, a higher level of ODA is associated with the occurrence of a war during a given period.

In column 4 I include all three “need” variables in the regression. I regress the “need” variables individually to determine the partial effect of each “need” variable on the distribution of US ODA

per capita. I did this to determine if there is collinearity among the different “need” variables. For example, I want to determine if each variable continues to have an effect on US ODA per capita distribution or if some of the variables, e.g. epidemics and natural disasters were collinear and thus their individual effect was absorbed into the effect of another “need” variable. In this example, it is possible that epidemics

Figure 3: Correlation Between “Need” Variables

	Mean # of natural disasters	Dummy for Occurrence of War	Mean # of political instability events
Mean # of epidemics	0.580 (p<0.0001)	0.156 (p<.0001)	0.260 (p<0.0001)
Mean # of natural disasters	1.000	0.179 (p<0.0001)	
Mean # of political instability events	0.458 (p<0.0001)	0.353 (p<0.0001)	

follow natural disasters as outbreaks of communicable diseases often occur after the onset of a natural disaster. My results suggest that the effect of epidemics may be absorbed into the effect of natural disasters on the distribution of US ODA. Figure 3 shows that epidemics and disasters are highly correlated (0.580). The effect of epidemics found in column 1 may be proxying for the effect of natural disasters on US ODA distribution. This could explain the change from a negative and highly significant coefficient in column 1 to the smaller and insignificant effect of epidemics in column 4. Here, the coefficients for natural disasters and occurrence of war remain basically the same as when regressed individually in columns 2 and 3. In column 4, the coefficients for mean number of natural disasters and the dummy variable for the occurrence of war maintain the same signs and remain significant. These results suggest that the mean number of natural disasters and the occurrence of war as types of “need” are associated with the distribution of US ODA per capita.

The coefficient for mean number of political instability events remains negative and significant for columns 1 (epidemics) and 3 (wars). The coefficient becomes insignificant when regressed with natural disasters. Figure 3 shows that these two variables are highly correlated (0.458). This suggests that the effect of political instability may be proxying for the effect of natural disasters. The partial effect of political instability may be absorbed into the effect of natural disasters. The coefficient for political instability also becomes insignificant in column 4 when regressed with all three “need” variables. This may be a reflection of the high level of collinearity between political instability and natural disasters as well as the fairly high levels of collinearity between political instability and the occurrence of war (0.353) and mean number of epidemics (0.260). This suggests that acts of political instability (coups, assassination attempts, strikes, etc.) might be linked to the number of natural disasters, epidemics, and the occurrence of war in a country. The partial effect of political instability alone may have been absorbed into the other “need” variables.

Overall, I found that occurrence of different types of “need” events is associated with the amount of ODA per capita the US distributes. An increase in the mean number of epidemics in a recipient country, after controlling for the effects of natural disasters and the occurrence of war, is associated with a negative but insignificant effect on US ODA per capita. On the other hand, an increase of one in the index of average number of natural disasters (corresponding to five additional disasters in a given period), after controlling for the occurrence of war and the mean number of epidemics, is associated with an approximate 15.3% decrease in US ODA per capita to a recipient country. The occurrence of war in a country during a period, after controlling for mean number political instability events, epidemics, and natural disasters, is associated with an approximate 41.9% increase in the amount of US ODA per capita a country receives.

Media Variables

Table 3 shows the regression results using log of total US bilateral ODA per capita as the dependent variable and including coverage in US media outlets of different types of “need” events as independent variables. I ran these regressions to determine if the amount of media hits in US media outlets (aggregate of the amount of newspaper articles and TV news reports) about different types of “need” events is associated with the distribution of per capita US ODA.

Column 1 shows the results of including mean number of media hits in US media outlets about epidemics per year during a given period in a country, on the distribution of US ODA per capita. The coefficient is negative and insignificant. The mean number of media hits in US media outlets for natural disasters as shown in column 2, the mean number of media hits for war as shown in column 3, the aggregate variable “allmedia,” representing the sum of the three media variables as shown in column 5, all result in negative and insignificant coefficients. These results suggest that

increased media coverage on different types of “need” events is associated with an insignificant but negative effect on the amount of per capita US ODA distributed to countries. This means that the partial effect of media coverage alone is not associated with an effect on the distribution of US ODA.

Also of possible interest, but although statistically insignificant are the results of column 4, which includes variables for the mean number of media hits for epidemics, wars, and natural disasters.

The coefficients all remain insignificant, but they all increase in size and the coefficient for mean number of media hits for epidemics changes in sign. Figure 4 shows that these three media variables are all highly correlated, with the epidemic variable being highly correlated with both the natural disaster (0.618) and war (0.428) media

	Mean # of media hits for natural disasters	Mean # of media hits for war
Mean # of media hits for epidemics	0.618 (p<0.0001)	0.428 (p<0.0001)
Mean # of media hits for natural disasters	1.000	0.394 (p<0.0001)

variables. The fact that the media variable for epidemics changes sign could indicate that it may be proxying for either of the other two media variables. Media coverage on epidemics may follow media coverage on natural disasters. Since none of these coefficients are significant, collinearity between these variables is not of great concern.

None of the media coefficients are statistically significant and there are no major changes in the other control variables when the media variables are included in the models. This shows that the media variables, alone, are not driving the distribution of US ODA. Establishing these results are important to determining the effect of media coverage of an event, controlling for the event, has on the distribution of ODA. This issue will be discussed in Table 4.

Need and Media Variables

Table 4 shows the regression results using the log of total US bilateral ODA per capita as the dependent variable. This table shows the results of including both the “need” and media coverage variables in the regressions. The aim is to determine the effect of media coverage of different types of “need” events on the distribution of US ODA, after controlling for the occurrence of different types of “need” events.

Table 2 shows the effect of different need events on the distribution of aid. It was justified to believe that different types of country “need” might have an effect on the amount of ODA they received. Table 3 shows that the effect of media coverage alone did not have a significant effect on the distribution of US ODA. Stemming from prior research, this is an expected result. Foreign policy and other strategic objectives have been determined to drive the distribution of ODA, not the amount of media coverage a country receives.

Table 4 reveals whether, after controlling for the “need” event, the amount of media coverage concerning different “need” events a country receives in US media outlets is associated with the amount of US ODA it receives. Under the plausible assumption that aid flows per se do not generate media stories, significant results would suggest that the amount of media coverage does have an effect on the distribution of per capita ODA.

Column 1 shows the relationship between the amount of media coverage of epidemics on US ODA per capita, after controlling for the mean number of epidemics that occurred in a country during a given period. The coefficient on the media coverage variable is positive and statistically

insignificant. All of the other variables in the model are statistically significant. This includes the variable for “need,” the mean number of epidemics that occurred in a country. The significance of the “need” variable should be questioned due to the results found in table 2. With the high levels of correlation shown in Figure 3, epidemics could be proxying for natural disasters or another “need” variable. This will be discussed in the column 4 results. The results in column 1 suggests that after controlling for the occurrence of epidemics, the amount of media coverage on epidemics is not associated with a significant effect on the amount of US ODA per capita a country received. The negative coefficient may reflect the fact that epidemics may draw increased media coverage. But, as discussed earlier, the relationship between ODA and the occurrence of epidemics may be one of reverse causation. This means that the countries that do not receive ODA may be those that experience epidemics; the lack of ODA may have limited their ability to prevent the outbreak of an epidemic. If this is the situation, the epidemic may receive increased media coverage, but it would be of a country that may have already experienced lower levels of US ODA. This situation would explain the negative coefficient on the variable expressing the amount of media coverage on epidemics.

Column 2 shows the relationship between the amount of media coverage of natural disasters, after controlling for the mean number of natural disasters that occurred, and the amount of US ODA per capita a country receives. All of the other control variables remain statistically significant except for the “need” variable representing the mean number of political instability events. As shown in table 2 and Figure 3, we run the risk of collinearity between this variable and the other “need” variables thus explaining the change in significance in this regression. This column shows that the coefficient on the “need” variable for natural disasters remains negative and significant at the 1% level, as is shown in column 2 of table 2. What is of note here is that the coefficient on the media coverage variable is positive and significant at the 10% level. This suggests that the amount of media coverage on natural disasters, after controlling for the mean number of natural disasters that occurred, has a significant and positive effect on the amount of US ODA per capita distributed to a given country. The coefficient of 0.00730 suggests that each an increase in the index of mean media hits (newspaper or TV) about a natural disaster (corresponding with five additional media hits in a given period) is associated with a 0.73% increase in US per capita ODA for a country.

Column 3 shows that the relationship between the amount of media coverage on war, after controlling for the occurrence of war in a country during a period, and the distribution of US per capita ODA. The coefficient on the media coverage variable is negative and insignificant. This suggests that the amount of media coverage on a war has is not associated with any effect on the distribution of US ODA, and if anything, the effect is negative. A possible explanation for this effect is that there may be cases where the length of a war produces sustained media coverage of the war, but is not associated with increases in US ODA. For example, the conflict in Afghanistan throughout the 1980s produced a large amount of media coverage, but was not associated with increased US ODA to Afghanistan. This may in fact explain the negative coefficient. A long war in a country could produce media coverage but could be associated with decreased ODA due to the conflict in the area. Reconstruction efforts and projects may be put on hold and aid efforts decreased during the conflict.

Column 4 shows the relationship between the aggregate amount of media coverage of the three types of “need” events, after controlling for the occurrence of the three “need” variables, and the distribution of US ODA per capita. The coefficient on the “allmedia” variable is positive and insignificant. This suggests that aggregate media coverage on the different types of “need” events

is associated with a positive, although insignificant, effect on the amount of US ODA per capita a country receives.

Also of note in column 4 are the changes in direction and significance of the “need” variables. All of the coefficients for the “need” variables, except for the mean number of natural disasters, become statistically insignificant. The political instability coefficient becomes insignificant but remains negative. Its correlation with the other “need” variables may explain the change. The coefficient on the epidemics variable becomes positive and insignificant. This again might be explained by its high correlation with natural disasters; it may be proxying for natural disasters. The coefficient on natural disasters becomes slightly more positive and remains significant. The coefficient on the war “need” variable decreases in size and becomes insignificant. This changes from being significant at the 5% level as shown in column 3. This might be explained by its high correlation (0.353) with political instability. The partial effect of the occurrence of war may be absorbed by the political instability variable as well as within the other “need” variables.

Overall, table 4 shows that the amount of media coverage of natural disasters, after controlling for natural disasters, is the only type of media coverage that has a positive and significant effect on the distribution of US ODA per capita. The effect of an increase of one on the mean amount of media hits (corresponding with five additional media hits on natural disasters in a given period) on natural disasters is associated with a 0.73% increase in US ODA per capita. An increase of one on the index of mean amount of media hits on epidemics (corresponding with five additional media hits on epidemics in a period) is associated with a 1.15% increase in US ODA per capita but is statistically insignificant. An increase of one on the index of mean amount of media hits on wars (corresponding with five additional media hits on wars) is associated with a 1.38% decrease in US ODA and is also insignificant. The effect of an increase of one on the index of the mean number of total media coverage hits of the three types of “need” events (corresponding with five additional “allmedia” hits in a period) is associated with a 0.345% increase in US ODA, but is also statistically insignificant.

Regression Results After Dropping Influential Observations

To check the robustness of my regression models in table 4, I created partial scatterplots of the observations for each regression model. I did this to determine if there were particular influential observations that are significantly pushing the regression line upwards or downwards. If it is found that a few observations are greatly affecting the entire regression model one may be justified in dropping those observations from the dataset. To justify the dropping of an observation I need sound theoretical reasoning explaining that the relationship between ODA and media coverage might have been obeying different “rules” during a given period. For example, if US foreign policy towards a country changed from period to period, their levels of ODA may change independent of the amount of media coverage the country may receive. It is generally thought that aid distributions changed as US foreign policy changed in the post-cold war period. Also because the ODA data is in per capita terms, the issue of outliers with regards to population size such as China and Singapore, as discussed earlier, may result in influential observations. These observations, due to the affect of their extreme differences in population size, may be obeying different rules with regards to the relationship between ODA and media coverage.

The “real” results are still those presented in table 4, using the full dataset. But the following results in table 5 show the effects of removing particular observations on each regression model. I provide explanations justifying why each particular observation was dropped from the dataset. In each case, I suggest that these particular observations may have greatly affected the entire regression

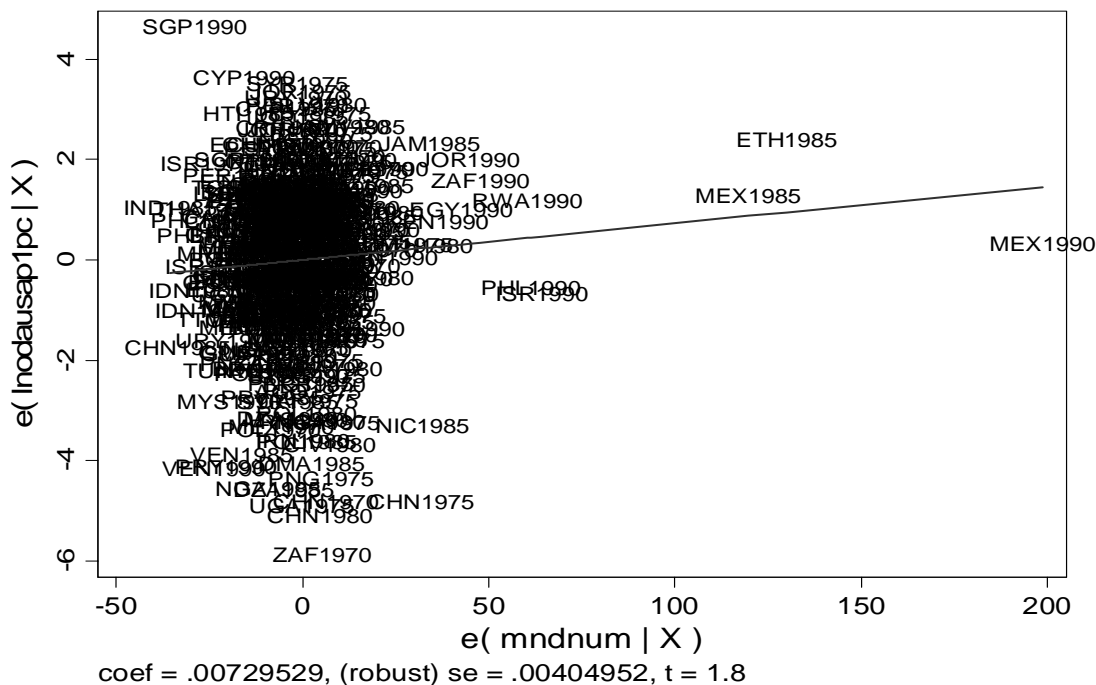
operating by different rules. The US imposed an aid embargo on Nicaragua in 1985 after the Sandinistas were elected into power in 1984 (Ruttan 316). It was US policy not to give aid to Nicaragua over 1985-1990, which is independent of the expected relationship between aid and media coverage. Because of this, I dropped the NIC1985 observation from this regression and the other regressions.

Column 1 in table 5 shows the relationship between the mean number of media hits of epidemics on US ODA per capita, after controlling for the mean number of epidemics occurring and dropping four observations: CHN1980, CHN1990, SGP1990, NIC1985. The coefficient on the variable representing the mean number of media hits on epidemics is positive but remains insignificant. These results differ from those found in column 1 of table 4 which uses the full dataset. The coefficient becomes more positive (.0352) and becomes more significant with a p-value of 0.153. The coefficient remains statistically insignificant though like it does when using the full dataset. This result suggests that media coverage of epidemics may not have an influence on the distribution of US ODA per capita. This may be associated with the collinearity between epidemics and natural disasters (see Figure 3). The effect of epidemics may be absorbed into the effect of natural disasters. Lastly, these results also suggest that the four outlier observations may have a significant influence on the model and, for the reasons provided, it would be reasonable to drop them from the dataset.

Media & Natural Disasters

Figure 6 shows the partial scatterplot of the relationship between US ODA per capita and the mean number of media hits on natural disasters, after controlling for the mean number of natural disasters occurring, using the full dataset. These results reflect the regression found in column 2 of table 4.

Figure 6: Partial Scatterplot of Media Coverage of Natural Disasters and Log of US ODA per Capita



I identified three influential observations, SGP1990, MEX1990, and NIC1985 as observations that could be influencing the entire regression. I use the same justification for dropping the SGP1990 observation as stated earlier. I drop the MEX1990 observation because I believe that Mexico obeys

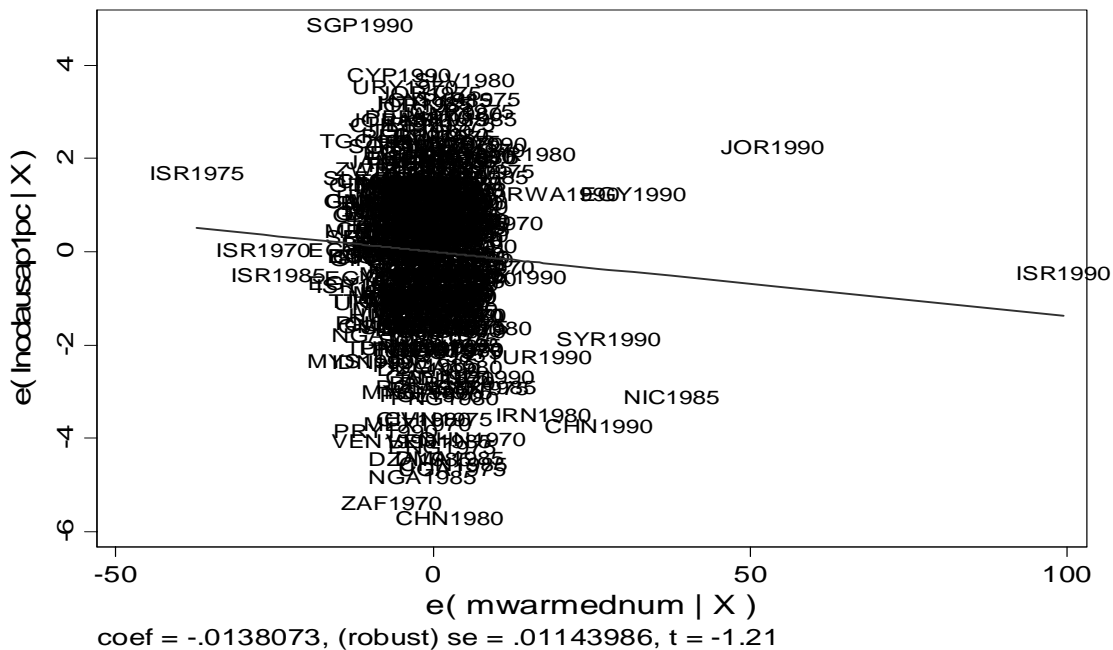
different rules than the other observations. Due to its geographic proximity to the US and having the largest number of foreign-born immigrants in the US in 1990 (4.3 million), I believe that Mexico receives more media coverage by US media outlets than other countries, independent of events in Mexico (Lapham 2). Also, the 1990 period covers the post-cold war period when the US redistributed some ODA from the historical recipients of aid to the newly independent states and former Soviet states. Countries such as Mexico, Israel, and many of the Central American countries, historical recipients of US ODA, experienced decreases in ODA during this period. Countries such as Hungary, Poland, and Bulgaria experienced large increases in ODA. Thus, I don't believe that Mexico follows the same relationship as is expected between ODA per capita and media coverage. I drop the NIC1985 observation for the same reason stated earlier. US policy dictated ODA to Nicaragua during this period.

Column 2 in table 5 shows the relationship between the mean number of media hits of natural disasters on US ODA per capita, after controlling for the mean number of natural disasters occurring and dropping three observations: SGP1990, MEX1990, NIC1985. The coefficient on the mean number of media hits on natural disasters remains positive and increases substantially and becomes significant at the 1% level. This changes from being significant at the 10% level when the full dataset is used. This suggests that these three observations have a great influence on the regression results. Since it is justified to drop these observations from the regression, the results suggest that media coverage of natural disasters is strongly associated with the level of US ODA per capita a country receives. These results further support the results found in column 2 of table 4.

Media & Wars

Figure 7 shows the partial scatterplot of the relationship between US ODA per capita and the mean number of media hits on wars, after controlling for the occurrence of war during the period, using the full dataset. These results reflect the regression found in column 3 of table 4.

Figure 7: Partial Scatterplot of Media Coverage of Wars and Log of US ODA per Capita



I identified four observations, SGP1990, NIC1985, ISR1975, and ISR1990, as influential observations that might be inordinately influencing the model. I drop SGP1990 and NIC1985 for

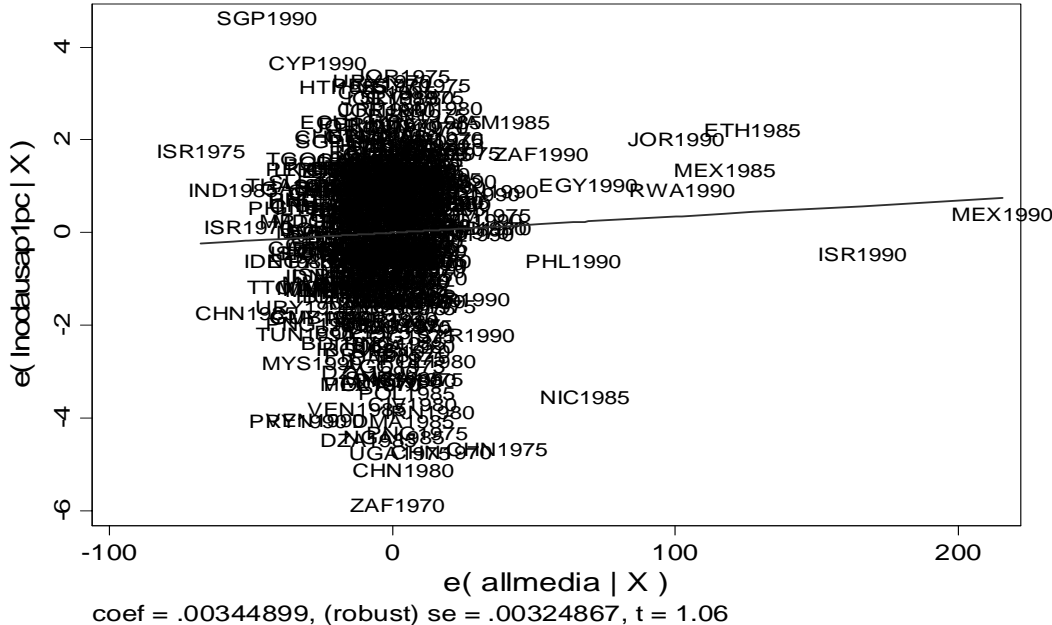
the same reasons that I stated in the earlier regression models. I drop ISR1975 and ISR1990 as outlier observations because of the strong foreign policy relationship between Israel and the US. Israel has long been a recipient of the largest amount of US ODA. This relationship though is driven by US foreign policy rather than need or media coverage. Israel, in the period after the 1973 Yom Kippur war, received a huge increase in US ODA. This was a change in strategy in US foreign policy (Ruttan 297). Israel also experienced a decrease of aid in the period after 1990. I attribute this to the post-cold war redistribution of US ODA that I discussed earlier. I justify dropping the Israel observations due to their extremely close relationship with the US government.

Column 3 in table 5 shows the relationship between media coverage of wars and the distribution of US ODA per capita, after controlling for the occurrence of war and dropping SGP1990, NIC1985, ISR1975 and ISR1990. The coefficient on the variable representing mean media hits on wars remains negative and insignificant. The coefficient becomes a bit more positive but more insignificant when compared with the coefficient found in column 3 of table 4, which includes all observations. This suggests that dropping these influential observations does not have a large effect on the model. These results also suggest that relationship between media coverage of wars and US ODA per capita is weak and insignificant.

All Media & All “Need” Events

Figure 8 shows the partial scatterplot of the relationship between US ODA per capita and the aggregate of coverage of all three “need” events, after controlling for the occurrence of these events, using the full dataset. These results reflect the regression found in column 4 of table 4.

Figure 8: Partial Scatterplot of Media Coverage of All “Need” Events and Log of US ODA per Capita



I identified four influential observations, MEX1990, ISR1990, NIC1985, and SGP1990 as potential observations that could greatly influence the overall regression results. These four observations, due to particular circumstances or characteristics, all have reasons why they could be dropped. I explained the reasons for dropping these four observations earlier: Mexico’s geographic closeness; Israel’s close foreign policy relationship with the US; the shift in US ODA in the post-cold war

period from historical recipients of US ODA; the embargo placed on Nicaragua in 1985; and Singapore's extremely small population size.

Column 4 in table 5 shows the relationship between mean media coverage of the three "need" events and US ODA per capita, after controlling for the "need" events and dropping the four identified observations. The coefficient on "allmedia" increases and remains positive and becomes significant at the 1% level. This is a significant change from the results found in column 4 of table 5, when using the full dataset. Prior to dropping these observations, the coefficient was positive but was insignificant. These results show that these four observations have a very strong influence on the model and that it may be justified in dropping them from the dataset. The results suggest that the amount of media coverage a country receives of "need" events is strongly associated with the amount of US ODA per capita that is distributed.

The observations that were dropped in the four regressions suggest that there may be other variables that should be included in future studies of US ODA distribution. The observations for Nicaragua suggest that one might want to include a variable that accounts trade sanctions, embargos, and other changes towards a country in US foreign policy. The Singapore and China observations suggest that per capita might not be the best way to measure ODA for a country. There should be a way to account for extremes in population size if using ODA per capita as the measure of how much ODA a country receives. The observations for Israel suggest that there should be way to account for changes in US foreign policy towards a historical ally. Changes in policy towards Israel have resulted in large changes of ODA towards the country. Lastly, the Mexico observations suggest that there should be variables to account for geographic closeness to the US. There should also be a variable that accounts for size of constituency or size of immigrant population of recipient country within the US. These dropped observations suggest that there are more variables that should be examined and included in future studies of US ODA per capita. Studying these variables is outside of the scope of this paper.

Overall, table 5 shows the relationships between different amounts of media coverage of "need" events and US ODA per capita, accounting for occurrence of the events and dropping certain influential observations that operate under different rules. After dropping the observations, the coefficient for the epidemics and war media variables remain statistically insignificant. An increase of one on the index of mean number of media hits on epidemics (corresponding with five additional media hits on epidemics) is associated with a 2.8% increase in US ODA per capita. An increase of one in the mean number of media hits on wars (corresponding with five additional media hits on wars) is associated with a 0.09% decrease in US ODA per capita.

After dropping certain observations, both the mean amount of media hits of natural disasters and the mean amount of the aggregate of media hits, "allmedia" become significant at the 1% level. An increase of one on the index of mean amount of media hits on natural disasters (corresponding with five additional media hits on natural disasters), after controlling for the occurrence of natural disasters, is associated with a 1.3% increase in US ODA per capita. An increase of one in the index of mean amount of aggregate media hits on "need" events (corresponding with five additional media hits of "need" events), after controlling for the occurrence of "need" events is associated with a 0.95% increase in US ODA per capita. These two coefficients are statistically significant.

To illustrate the possible monetary magnitude of increased media coverage of the two significant categories of media coverage I will present three examples. These present imprecise measures but is an interesting mind experiment to conduct. If I observe the mean value for population and

mean value for per capita ODA, I can present potential monetary changes that are associated with changes in media coverage. I will present three scenarios for countries with a population close to the mean: 1. whom received a high level of ODA per capita, 2. whom received a level of per capita ODA close to the mean, and 3. whom received a very low level of per capita ODA. Please note that these examples are meant to suggest what might be likely to happen, on average across a group of countries with similar characteristics to those countries, over a long period of time during which some periods may be much more representative of the measured effects than other periods are. These examples by no means suggest that these would be the observed effects for these particular countries during these periods.

Scenario 1: Poland in 1990 had population of 38.1 million yet received \$11.53 in per capita ODA. This scenario presents the situation of country with a population close to the mean and a very high level of per capita ODA. An additional five media hits on natural disasters, after controlling for the occurrence of natural disasters, is associated with a 1.3% increase in US ODA per capita. This could be equated with a \$0.15 per capita increase in ODA, which could result in a \$5.72 million increase in total ODA for Poland in 1990. Five additional media hits covering any of the “need” events is associated with a 0.95% increase in US ODA per capita. This could be equated with a \$0.11 per capita increase in ODA that could result in a \$3.62 million increase in total ODA for Poland.

Scenario 2: Sudan in 1985 had a population of 21.9 million and received \$6.96 per capita in ODA. This scenario presents the situation of a country with a population close to the mean and a per capita ODA close to the mean. In this situation, an additional five media hits on natural disasters, after controlling for the occurrence of natural disasters, is associated with a 1.3% increase in US ODA per capita. This could be equated with a \$0.09 per capita increase in ODA, which could result in a \$1.97 million increase in total ODA for Sudan in 1985. Five additional media hits covering any of the “need” events is associated with a 0.95% increase in US ODA per capita. This could be equated with a \$0.07 per capita increase in ODA which would result in a \$1.53 million increase in total ODA for Sudan.

Scenario 3: This scenario presents the situation of a country with a population close to the mean and a very low level of per capita ODA. Algeria in 1990 had a population of 25 million and received \$0.02 per capita in ODA. In this situation, an additional five media hits on natural disasters, after controlling for the occurrence of natural disasters, is associated with a 1.3% increase in US ODA per capita. This could be equated with a \$0.00026 per capita increase in ODA, which could result in a \$6500 increase in total ODA for Algiers in 1990. Five additional media hits covering any of the “need” events is associated with a 0.95% increase in US ODA per capita. This could be equated with a \$0.00019 per capita increase in ODA which would result in a \$4750 increase in total ODA for Algiers. As mentioned earlier, these measures are imprecise and cannot be taken as fact. But these examples provide a good mind experiment in estimating the potential influence of media coverage of natural disasters and the aggregate media coverage level on monetary amounts of US ODA distributed to countries.

Overall, the results suggest that media coverage of natural disasters and the aggregate amount of coverage of “need” events, in US media outlets, are associated with significant influence on the amount of US ODA per capita that is distributed to recipient countries. But, the potential monetary amounts can vary greatly with variance in population size so cannot be substantially predicted using my results.

Conclusion

The results of this research suggest that a typical developing country, during a typical five-year period, gets roughly one percent more aid per capita from the US if a disaster, epidemic, or war in that country is mentioned an average of once per year (or five per period) in major US newspapers and television broadcasts during the period. This does not constitute a prediction of the impact of coverage of any particular event in a particular country at a particular time, but rather suggests a long-term average relationship across several countries. Rather than a tactical tool, this information might constitute a long-term strategic planning tool for NGOs, advocacy groups, and lobbyists interested in affecting flows of US aid, as well as a tool for the US government in strategically managing its relationship with the media to further its foreign policy goals.

For some countries in some situations, it is plausible, that just a few media stories could be worth millions of dollars in aid. If the proposed relationship is true, then some organizations that currently send money or goods to the poorest countries could actually cause more money to flow to those countries, if instead of sending money or goods, they spent the same money trying to disseminate information via the US media about the situation in their country of interest. Particularly for smaller NGOs, these results suggest that effective use of the media may be more beneficial to achieving their goals. An increased emphasis on media strategies could be radical change of direction for organizations, but it could prove to be more effective than current strategies. We cannot be sure that any given organization would benefit from focusing more attention to media strategies. But these results suggest that this is an issue that organizations, particularly smaller NGOs, interested in aid flows should seriously reflect upon.

These results may also encourage governmental agencies, such as USAID, to promote consistent reporting on the conditions of the countries they are operating in. They could keep attention on emerging situations rather than waiting for a crisis to emerge, and maintain in-country staff when a crisis has happened. Andrew Natsios highlighted these thoughts when he stated “ongoing coverage of mostly invisible but festering emergencies also has value – in fact it may be the critical challenge...[We] must foster a change away from reaction to prevention, because in cases like Somalia and Rwanda, media coverage and military intervention were too little, too late or too ineffectual...humanitarian [organizations] need to help the media focus on tension-filled situations before they erupt into crises” (Rotberg and Weiss 185).

This paper also contributes to the literature on the determinants of foreign aid allocation and to the growing literature on the effect of the media on the distribution of foreign assistance funds. The results found in this study corroborate and bolster the results found in the Van Belle et al. studies and the recently published Drury et al. paper that examined media coverage of natural disasters. By using a more robust dataset and an improved model this paper supports the findings that media coverage on natural disasters and media coverage on “need” events in general are associated with significant changes in the distribution of US ODA.

As I have mentioned earlier, the proposed relationship between media coverage and US ODA could be subject to the problem of reverse causality. One could propose that distribution of ODA to a country actually drives media coverage of the country. The example of what occurred during the famine in Ethiopia in the early 1980s illustrates this possibility. The massive global aid effort to address the famine actually caused the increase in media coverage of the country. Drury et al. address the problem of reverse causality in their paper (2005). While examining this relationship is

outside the scope of this paper, an analysis could be done if one obtained the necessary data. A test of Granger Causation could be accomplished if one had high frequency data, i.e. monthly, on the distribution of US ODA as well as high frequency data on media coverage. Unfortunately I was not able to obtain this data to examine this relationship. This could be a subject of future study.

Since the dataset I analyzed only included data up to 1994 I cannot assert what possible influence the Internet, as a media outlet, has had on aid flows. I can only assume that the increased speed by which news information can be disseminated has made the internet an influential news source and would affect the way aid allocations decisions, as a part of the foreign policy process, are made. There are many areas for future research involving the distribution of foreign assistance. Increased data sets, a more comprehensive list of control variables, and high frequency analyses would all contribute to a greater understanding of the way foreign assistance is distributed by the US to recipient countries.

The results, while subject to possible methodological problems, may also be subject to scrutiny of their practicality. Quantitatively, my results suggest that additional media coverage is associated with additional ODA. But in practice this relationship might not be stable. Increased media coverage of a country may not contribute to increased foreign aid. If there was a front-page story on Africa everyday, “media fatigue” could settle in, eventually reducing the impact of each additional story. We can’t be sure of the practical effects. But my results do suggest the possible effect of increased media coverage.

The state factors influencing the distribution of ODA are not always clear. But what is clear is that US ODA has an enormous impact on many of the low-income countries and people of the world. The billions distributed annually could affect billions of people around the world. Whether for strategic, economic, or humanitarian reasons, increased understanding of the factors affecting ODA distribution is important for stakeholders in foreign assistance. This study provides one more step in better analyzing the effects that the media, has on the distribution of US ODA.

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Appendix

Table 1: Replication of Alesina & Dollar OLS Estimation Results (five-year averages) 1970-1994

	Log of Total Bilateral ODA from OECD DAC Countries <i>Table 4; Column 1 in A&D Report</i>			Log of Total Bilateral ODA per capita from USA <i>Table 5; Row 1 in A&D Report</i>		
	(1) Results from Alesina & Dollar 2000 Study	(2) Alesina & Dollar Replication Results	(3) Alesina & Dollar Replication Results Including Variable for Political Instability Events	(4) Results from Alesina & Dollar 2000 Study	(5) Alesina & Dollar Replication Results	(6) Alesina & Dollar Replication Results Including Variable for Political Instability Events
	LnOdaoecdp1	LnOdaoecdp1	LnOdaoecdp1	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc
Log of GDP per capita	6.56*** (1.38)	6.75*** (1.34)	6.81*** (1.35)	1.84 \cup	4.24* (2.45)	5.28** (2.45)
Log of GDP per capita squared	-0.491*** (-0.0923)	-0.505*** (.090)	-0.509*** (0.0909)	\cup	-0.370** (0.166)	-0.443*** (0.167)
Log of Population	1.57* (0.821)	1.67** (.776)	1.60* (0.827)	-	-	-
Log of Population Squared	-0.0350 (-0.0257)	-0.0376 (.0240)	-0.0351 (0.0260)	-	-	-
Open	0.383*** (0.149)	0.444*** (0.151)	0.439*** (0.152)	1.30*** (0.323)	1.57*** (0.320)	1.44*** (0.317)
Democracy (political)	0.142*** (0.0440)	0.115*** (0.0407)	0.117*** (0.0407)	0.570*** (0.0706)	0.386*** (0.0637)	0.413*** (0.0639)
UN Voting friend of US	-0.00600 (-0.0200)	-0.00933 (0.0221)	-0.00868 (0.0221)	0.0600*** (0.0167)	0.0708*** (0.0187)	0.0678*** (0.0182)
UN Voting friend of Japan	0.153*** (0.0383)	0.159*** (0.0392)	0.157*** (0.0392)	-	-	-
Log of the # of years as a colony	0.291*** (0.0627)	0.264*** (0.0560)	0.268*** (0.0556)	-	-	-
Log of the # of years as a colony of the US	-	-	-	0.390* (0.231)	0.0835 (0.0717)	0.213** (0.104)
# of years not a colony of the US	-	-	-	0.0800 (0.0602)	0.0285*** (0.00494)	0.0261*** (0.00478)
Dummy Egypt	1.55*** (0.147)	1.43*** (0.148)	1.42*** (0.157)	4.09*** + (0.988)	3.72*** (0.430)	3.61*** (0.463)
Dummy Israel	6.47*** (2.14)	7.17*** (2.22)	7.22*** (2.23)	5.04*** (1.28)	5.55*** (1.48)	6.35*** (1.48)
% Muslim	-0.00100 (-0.00238)	0.00325* (0.00191)	0.00333* (0.00193)	0.0100*** (0.00505)	0.0141*** (0.00374)	0.0140*** (0.00361)
% Roman Catholic	0.00100 (0.00333)	0.00426* (0.00239)	0.00465* (0.00246)	0.0100* (0.00592)	0.0240*** (0.00513)	0.0241*** (0.00490)
% Other Religion	-0.00900*** (-0.00306)	-0.00830** (0.00391)	-0.00848** (0.00386)	-0.00400 (-0.00800)	-0.0196** (0.00800)	-0.0204*** (0.00782)
Mean # of Political Instability Events/Year During Period	-	-	-0.0123 (0.0232)	-	-	-0.0949*** (0.0318)
Intercept	Not reported	-47.9*** (8.08)	-47.6*** (8.26)	Not Reported	-26.4*** (8.86)	-29.6*** (8.88)
N	397	397	397	364	364	364
R ²	0.630	0.628	0.629	0.500	0.455	0.469

*** = significance at the 1% level

** = significance at the 5% level

* = significance at the 10% level

Note: *Panel Regressions Using five-year averages. Standard errors calculated with White's correction for heteroskedasticity. Standard errors reported in parentheses. Coefficients on time dummies not reported. \cup indicates that A&D reported elasticity of aid with respect to income at the mean of income (47). They did not specify if they included the logarithmic or quadratic in the model. They did not report a standard error for the elasticity coefficient. + indicates that A&D reported 40.09 for the coefficient for the Dummy Egypt variable. I believe this is a typographical error. I interpreted it as 4.09.*

**Table 2: OLS Estimation With “Need” Event Variables:
Dependent Variable: Log of US ODA Per Capita (five-year averages) 1970-1994**

	Need Variable Regressions			
	(1)	(2)	(3)	(4)
	Epidemics	Natural Disasters	War	3 Need Variables
	Log of Total Bilateral ODA per capita from USA			
	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc
Log of GDP per capita	5.50** (2.40)	6.50*** (2.30)	5.69** (2.42)	6.83*** (2.28)
Log of GDP per capita squared	-0.461** (0.164)	-0.528*** (0.157)	-0.468*** (0.165)	-0.548*** (0.156)
Open	1.42*** (0.314)	1.29*** (0.298)	1.47*** (0.316)	1.32*** (0.299)
Democracy (Political)	0.419*** (0.0631)	0.434*** (0.0626)	0.424*** (0.0641)	0.443*** (0.0630)
UN voting friend of US	0.0630*** (0.0183)	0.0595*** (0.0190)	0.0704*** (0.0180)	0.0618*** (0.0190)
Log of the # of years a country is a colony of the US	0.208** (0.0890)	0.576*** (0.118)	0.138 (0.116)	0.502*** (0.131)
# of years country is not a colony of the US	0.0264*** (0.00482)	0.0212*** (0.00474)	0.0263*** (0.00479)	0.0216*** (0.00480)
Dummy Egypt	3.40*** (0.00482)	3.33*** (0.425)	3.73*** (0.479)	3.42*** (0.436)
Dummy Israel	6.44*** (1.48)	5.83*** (1.48)	5.91*** (1.46)	5.46*** (1.47)
% Muslim	0.0137*** (0.00354)	0.0123*** (0.00348)	0.0144*** (0.00367)	0.0126*** (0.00354)
% Roman Catholic	0.0229*** (0.00480)	0.0182*** (0.00494)	0.0242*** (0.00495)	0.0184*** (0.00501)
% Other Religion	-0.0212*** (0.00783)	-0.0178** (0.00714)	-0.0187** (0.00779)	-0.0164** (0.00712)
Mean # of Political Instability Events/Year During a Given Period	-0.0642** (0.0324)	-0.0101 (0.0375)	-0.110*** (0.0310)	-0.0243 (0.0365)
Mean # of Epidemics/Year During a Given Period	-0.586*** (0.176)	-	-	-0.0219 (0.227)
Mean # of Natural Disasters/Year During a Given Period	-	-0.157*** (0.0267)	-	-0.153*** (0.0316)
Dummy for War Occur During Period	-	-	0.488** (0.244)	0.419* (0.238)
Mean # of Media hits for War/Year During a Given Period	-	-	-	-
Mean # of Media hits for Epidemics/Year During a Given Period	-	-	-	-
Mean # of Media hits for Natural Disasters/Year During a Given Period	-	-	-	-
Total of Mean # of Media Hits for War, Epidemics, and Natural Disasters/Year During a Given Period	-	-	-	-
Intercept	-30.1*** (8.70)	-33.1*** (8.33)	-31.4*** (8.77)	-34.5*** (8.27)
N	364	364	364	364
R ²	0.481	0.510	0.474	0.513

*** = significance at the 1% level
 ** = significance at the 5% level
 * = significance at the 10% level

Note: Panel Regressions using five-year averages. Standard errors calculated with White's correction for heteroskedasticity. Standard errors reported in parentheses. Coefficients on time dummies not reported.

Table 3: OLS Estimation With Media Variables:
Dependent Variable: Log of US ODA Per Capita (five-year averages) 1970-1994

	Media Variable Regressions				
	(1) Epidemics	(2) Natural Disasters	(3) War	(4) 3 Media Variables	(5) Allmedia
	Log of Total Bilateral ODA per capita from USA				
	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc
Log of GDP per capita	5.32** (2.43)	5.06** (2.51)	5.28** (2.43)	5.12** (2.48)	5.09** (2.48)
Log of GDP per capita squared	-0.446*** (0.166)	-0.428** (0.171)	-0.441*** (0.166)	-0.431** (0.169)	-0.430** (0.170)
Open	1.43*** (0.317)	1.44*** (0.316)	1.43*** (0.316)	1.43*** (0.317)	1.43*** (0.315)
Democracy (Political)	0.412*** (0.0643)	0.410*** (0.0643)	0.402*** (0.0647)	0.403*** (0.06450)	0.406*** (0.0646)
UN voting friend of US	0.0672*** (0.0182)	0.0666*** (0.0183)	0.0686*** (0.0184)	0.0677*** (0.0187)	0.0668*** (0.0182)
Log of the # of years a country is a colony of the US	0.205* (0.106)	0.227** (0.0919)	0.207** (0.103)	0.220** (0.0985)	0.222** (0.0923)
# of years country is not a colony of the US	0.0259*** (0.00475)	0.0252*** (0.00467)	0.0256*** (0.00468)	0.0252*** (0.00466)	0.0251*** (0.00466)
Dummy Egypt	3.60*** (0.454)	3.68*** (0.511)	3.76*** (0.569)	3.77*** (0.574)	3.72*** (0.538)
Dummy Israel	6.42*** (1.48)	6.47*** (1.47)	6.88*** (1.47)	6.81*** (1.47)	6.65*** (1.47)
% Muslim	0.0139*** (0.00363)	0.0140*** (0.00360)	0.0144*** (0.00361)	0.0143*** (0.00363)	0.0140*** (0.00362)
% Roman Catholic	0.0239*** (0.00487)	0.0238*** (0.00485)	0.0238*** (0.00491)	0.0237*** (0.00489)	0.0237*** (0.00486)
% Other Religion	-0.0208*** (0.00789)	-0.0205*** (0.00772)	-0.0207*** (0.00775)	-0.0206*** (0.00781)	-0.0207*** (0.00770)
Mean # of Political Instability Events/Year During a Given Period	-0.0910*** (0.0334)	-0.0882*** (0.0324)	-0.0892*** (0.0324)	-0.0867*** (0.0336)	-0.0860*** (0.0326)
Mean # of Epidemics/Year During a Given Period	-	-	-	-	-
Mean # of Natural Disasters/Year During a Given Period	-	-	-	-	-
Dummy for War Occur During Period	-	-	-	-	-
Mean # of Media hits for War/Year During a Given Period	-	-	-0.0122 (0.0110)	-0.00904 (0.0115)	-
Mean # of Media hits for Epidemics/Year During a Given Period	-0.0149 (0.0336)	-	-	0.00226 (0.0341)	-
Mean # of Media hits for Natural Disasters/Year During a Given Period	-	-0.00455 (0.00453)	-	-0.00313 (0.00491)	-
Total of Mean # of Media Hits for War, Epidemics, and Natural Disasters/Year During a Given Period	-	-	-	-	-0.00405 (0.00350)
Intercept	-29.8*** (8.82)	-28.8*** (9.12)	-29.8*** (8.78)	-29.1*** (8.99)	-28.9*** (9.03)
N	364	364	364	364	364
R ²	0.469	0.470	0.471	0.471	0.471

*** = significance at the 1% level
 ** = significance at the 5% level
 * = significance at the 10% level

Note: Panel Regressions using five-year averages. Standard errors calculated with White's correction for heteroskedasticity. Standard errors reported in parentheses. Coefficients on time dummies not reported.

Table 4: OLS Estimation With “Need” Event & Media Variables:
Dependent Variable: Log of US ODA Per Capita (five-year averages) 1970-1994

	Need & Media Variable Regressions			
	(1) Epidemics	(2) Natural Disasters	(3) War	(4) 3 Need Variables and Allmedia Variable
	Log of Total Bilateral ODA per capita from USA			
	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc
Log of GDP per capita	5.47** (2.40)	7.03*** (2.39)	5.71** (2.39)	7.07*** (2.37)
Log of GDP per capita squared	-0.459*** (0.163)	-0.563*** (0.164)	-0.467*** (0.163)	-0.564*** (0.163)
Open	1.43*** (0.314)	1.27*** (0.298)	1.47*** (0.315)	1.31*** (0.301)
Democracy (Political)	0.421*** (0.0633)	0.442*** (0.0628)	0.412*** (0.0650)	0.450*** (0.0637)
UN voting friend of US	0.0632*** (0.0183)	0.0603*** (0.0191)	0.0715*** (0.0183)	0.0619*** (0.0191)
Log of the # of years a country is a colony of the US	0.214** (0.0925)	0.605*** (0.136)	0.128 (0.114)	0.534*** (0.143)
# of years country is not a colony of the US	0.0265*** (0.00478)	0.0219*** (0.00471)	0.0258*** (0.00469)	0.0219*** (0.00477)
Dummy Egypt	3.41*** (0.403)	3.19*** (0.376)	3.90*** (0.596)	3.31*** (0.411)
Dummy Israel	6.39*** (1.49)	5.57*** (1.52)	6.48*** (1.45)	5.18*** (1.52)
% Muslim	0.0138*** (0.00357)	0.0122*** (0.00346)	0.0147*** (0.00367)	0.0125*** (0.00354)
% Roman Catholic	0.0230*** (0.00479)	0.0178*** (0.00496)	0.0238*** (0.00496)	0.0182*** (0.00502)
% Other Religion	-0.0209*** (0.00800)	-0.0173** (0.00726)	-0.0188** (0.00771)	-0.0160** (0.00721)
Mean # of Political Instability Events/Year During a Given Period	-0.0661** (0.0337)	-0.00857 (0.0380)	-0.104*** (0.0315)	-0.0242 (0.0369)
Mean # of Epidemics/Year During a Given Period	-0.607*** (0.181)	-	-	0.00724 (0.227)
Mean # of Natural Disasters/Year During a Given Period	-	-0.179*** (0.0316)	-	-0.168*** (0.0373)
Dummy for War Occur During Period	-	-	0.514** (0.240)	0.391 (0.238)
Mean # of Media hits for War/Year During a Given Period	-	-	-0.0138 (0.0114)	-
Mean # of Media hits for Epidemics/Year During a Given Period	0.0115 (0.0292)	-	-	-
Mean # of Media hits for Natural Disasters/Year During a Given Period	-	0.00730* (0.00405)	-	-
Total of Mean # of Media Hits for War, Epidemics, and Natural Disasters/Year During a Given Period	-	-	-	0.00345 (0.00325)
Intercept	-29.9*** (8.69)	-35.0*** (8.62)	-31.6*** (8.63)	-35.4*** (8.54)
N	364	364	364	364
R ²	0.481	0.513	0.476	0.515

*** = significance at the 1% level
 ** = significance at the 5% level
 * = significance at the 10% level

Note: Panel Regressions using five-year averages. Standard errors calculated with White's correction for heteroskedasticity. Standard errors reported in parentheses. Coefficients on time dummies not reported.

Table 5: Regression Results After Dropping Influential Observations
OLS Estimation: Dependent Variable: Log of US ODA Per Capita (five-year averages) 1970-1994

	Need & Media Variable Regressions			
	(1) Epidemics Dropped Obs = CHN1980, CHN1990, SGP1990, NIC1985	(2) Natural Disasters Dropped Obs = SGP1990, MEX1990, NIC1985	(3) War Dropped Obs = NIC1985, SGP1990, ISR1975, ISR1990	(4) 3 Need Variables and Allmedia Variable Dropped Obs = MEX1990, ISR1990, NIC1985, SGP1990
	Log of Total Bilateral ODA per capita from USA			
	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc	LnOdausap1pc
Log of GDP per capita	7.75** (2.12)	8.96*** (2.11)	7.40*** (2.15)	8.96*** (2.07)
Log of GDP per capita squared	-0.617*** (0.143)	-0.698*** (0.143)	-0.587*** (0.146)	-0.698*** (0.142)
Open	1.29*** (0.312)	1.27*** (0.299)	1.46*** (0.315)	1.32*** (0.303)
Democracy (Political)	0.426*** (0.0617)	0.452*** (0.0617)	0.423*** (0.0646)	0.464*** (0.0624)
UN voting friend of US	0.0598*** (0.0182)	0.0562*** (0.0187)	0.0694*** (0.0182)	0.0594*** (0.0189)
Log of the # of years a country is a colony of the US	0.202** (0.0892)	0.581*** (0.148)	0.0970 (0.111)	0.543*** (0.158)
# of years country is not a colony of the US	0.0235*** (0.00474)	0.0225*** (0.00469)	0.0261*** (0.00471)	0.0227*** (0.00477)
Dummy Egypt	3.27*** (0.408)	3.03*** (0.336)	3.80*** (0.609)	3.08*** (0.351)
Dummy Israel	6.54*** (1.43)	6.16*** (1.46)	6.23*** (1.47)	5.84*** (1.45)
% Muslim	0.0134*** (0.00353)	0.0120*** (0.00343)	0.0143*** (0.00368)	0.0121*** (0.00350)
% Roman Catholic	0.0223*** (0.00472)	0.0188*** (0.00492)	0.0246*** (0.00495)	0.0191*** (0.00499)
% Other Religion	-0.0164** (0.00788)	-0.0195** (0.00713)	-0.0209*** (0.00758)	-0.0179** (0.00712)
Mean # of Political Instability Events/Year During a Given Period	-0.0785** (0.0331)	-0.0101 (0.0378)	-0.108*** (0.0319)	-0.0264 (0.0370)
Mean # of Epidemics/Year During a Given Period	-0.641*** (0.181)	-	-	0.0435 (0.219)
Mean # of Natural Disasters/Year During a Given Period	-	-0.194*** (0.0307)	-	-0.192*** (0.0360)
Dummy for War Occur During Period	-	-	0.537** (0.248)	0.362 (0.239)
Mean # of Media hits for War/Year During a Given Period	-	-	-0.00905 (0.0210)	-
Mean # of Media hits for Epidemics/Year During a Given Period	0.0352 (0.0246)	-	-	-
Mean # of Media hits for Natural Disasters/Year During a Given Period	-	0.0130*** (0.00405)	-	-
Total of Mean # of Media Hits for War, Epidemics, and Natural Disasters/Year During a Given Period	-	-	-	0.00950*** (0.00353)
Intercept	-37.9*** (7.78)	-41.7*** (7.69)	-37.4*** (7.91)	-41.8*** (7.59)
N	360	361	360	360
R ²	0.475	0.530	0.476	0.527

*** = significance at the 1% level
 ** = significance at the 5% level
 * = significance at the 10% level

Note: Panel Regressions using five-year averages. Standard errors calculated with White's correction for heteroskedasticity. Standard errors reported in parentheses. Coefficients on time dummies not reported.

Figure 9: Definition of Key Variables

Variable	Definition
ODAUSA	LN of aid (five-year averages) 1970 to 1994 (millions in constant 1985 dollars)
ODAUSAP1	USA's ODA net (mill. constant 85\$) w/ 0.1 added when = 0
ODAUSAP1PC	USA's ODA per capita w/ 0/1 added when = 0
Country	Number of countries in the dataset
POP	Population, million, beginning of period (source: Summers-Heston)
LNPOPSQ	Log of Population – Squared
LNRGDPPC	Log of Real GDP per Capita
LNRGDPPCSQ	–Log of Real GDP per Capita – Squared
OPEN	Proportion of years in which the country is open (source: Sachs and Warner)
DEMOCRACY	Democracy and Political Rights (7 represents most free) (source: Freedom House)
COLSUSA	Number of years as a Colony of USA since 1900
FrJpn	Percentage of times in which the recipient has voted the same in UN as Japan
FRUSA	Percentage of times in which the recipient has voted the same in the UN as the USA
LNCOLSUSA	Log of Number of years as a Colony of USA since 1900
Dumwarhap1	Dummy for occurrence of war in country during period
Mdisasnum	Mean number of Natural Disasters occurring in each period
mepidemnum	Mean number of Epidemics occurring in each period
mtotpolinstabnum	Mean number of Political Instability Events occurring in each period
Mndnum	Mean number of media occurrences of Natural Disasters in each period
mmedepinum	Mean number of media occurrences of Epidemics in each period
Allmedia	Sum of the mndnum, mmedepinum, and mwarmednum for each country, for each period.
DUMEGY	Dummy for Egypt
DUMISR	Dummy for Israel
Muslim	Percentage of population that is Muslim in country
Roman Catholic	Percentage of population that is Roman Catholic in country
Other Religion	Percentage of Population that is Other Religion in country

Figure 10: Codes for Recipient Countries

ABW	ARUBA	LSO	LESOTHO
AFG	AFGHANISTAN	LTU	LITHUANIA
AGO	ANGOLA	LVA	LATVIA
AIA	ANGUILLA	MAC	MACAO
ALB	ALBANIA	MAR	MOROCCO
ANT	NETHERLANDS ANTILLES	MDA	MOLDOVA
ARE	UNITED ARAB EMIRATES	MDG	MADAGASCAR
ARG	ARGENTINA	MDV	MALDIVES
ARM	ARMENIA	MEX	MEXICO
ATG	ANTIGUA AND BARBUDA	MHL	MARSHALL ISLANDS
AZE	AZERBAIJAN	MLI	MALI
BDI	BURUNDI	MLT	MALTA
BEN	BENIN	MMR	MYANMAR
BFA	BURKINA FASO	MNG	MONGOLIA
BGD	BANGLADESH	MOZ	MOZAMBIQUE
BGR	BULGARIA	MRT	MAURITANIA
BHR	BAHRAIN	MSR	MONTSERRAT
BHS	BAHAMAS, THE	MUS	MAURITIUS
BLR	BELARUS	MWI	MALAWI
BLZ	BELIZE	MYS	MALAYSIA
BMU	BERMUDA	MYT	MAYOTTE
BOL	BOLIVIA	NAM	NAMIBIA
BRA	BRAZIL	NCL	NEW CALEDONIA
BRB	BARBADOS	NER	NIGER
BRN	BRUNEI	NGA	NIGERIA
BTN	BHUTAN	NIC	NICARAGUA
BWA	BOTSWANA	NIU	NIUE
CAF	CENTRAL AFRICAN REPUBLIC	NPL	NEPAL
CHL	CHILE	NRU	NAURU
CHN	CHINA	OMN	OMAN
CIV	COTE D'IVOIRE	PAK	PAKISTAN
CMR	CAMEROON	PAL	PALESTINE
COG	CONGO	PAN	PANAMA
COK	COOK ISLANDS	PER	PERU
COL	COLOMBIA	PHL	PHILIPPINES
COM	COMOROS	PLW	PACIFIC ISLANDS TRUST TERR. (PALAU)
CPV	CAPE VERDE	PNG	PAPUA NEW GUINEA
CRI	COSTA RICA	POL	POLAND
CUB	CUBA	PRK	KOREA, DEM. PEOPLE'S REP.
CYM	CAYMAN ISLANDS	PRY	PARAGUAY
CYP	CYPRUS	PYF	FRENCH POLYNESIA
CZE	CZECH REPUBLIC	QAT	QATAR
DJI	DJIBOUTI	ROM	ROMANIA
DMA	DOMINICA	RUS	RUSSIA
DOM	DOMINICAN REPUBLIC	RWA	RWANDA
DZA	ALGERIA	SAU	SAUDI ARABIA
ECU	ECUADOR	SDN	SUDAN
EGY	EGYPT	SEN	SENEGAL

ERI	ERITREA	SGP	SINGAPORE
EST	ESTONIA	SHN	ST. HELENA
ETH	ETHIOPIA	SLB	SOLOMON ISLANDS
FJI	FIJI	SLE	SIERRA LEONE
FLK	FALKLAND ISLANDS	SLV	EL SALVADOR
FSM	MICRONESIA	SOM	SOMALIA
GAB	GABON	STP	SAO TOME AND PRINCIPE
GEO	GEORGIA	SUR	SURINAME
GHA	GHANA	SVK	SLOVAK REPUBLIC
GIB	GIBRALTAR	SWZ	SWAZILAND
GIN	GUINEA	SYC	SEYCHELLES
GMB	GAMBIA, THE	SYR	SYRIAN ARAB REPUBLIC
GNB	GUINEA-BISSAU	TCA	TURKS AND CAICOS ISLANDS
GNQ	EQUATORIAL GUINEA	TCD	CHAD
GRD	GRENADA	TGO	TOGO
GTM	GUATEMALA	THA	THAILAND
GUY	GUYANA	TJK	TAJIKISTAN
HKG	HONG KONG	TKL	TOKELAU
HND	HONDURAS	TKM	TURKMENISTAN
HTI	HAITI	TON	TONGA
HUN	HUNGARY	TTO	TRINIDAD AND TOBAGO
IDN	INDONESIA	TUN	TUNISIA
IND	INDIA	TUR	TURKEY
IRN	IRAN, ISLAMIC REPUBLIC OF	TUV	TUVALU
IRQ	IRAQ	TWN	TAIWAN, CHINA
ISR	ISRAEL	TZA	TANZANIA
JAM	JAMAICA	UGA	UGANDA
JOR	JORDAN	UKR	UKRAINE
KAZ	KAZAKHSTAN	URY	URUGUAY
KEN	KENYA	UZB	UZBEKISTAN
KGZ	KYRGYZ REPUBLIC	VCT	ST. VINCENT AND THE GRENADINES
KHM	CAMBODIA	VEN	VENEZUELA
KIR	KIRIBATI	VGB	BRITISH VIRGIN ISLANDS
KNA	ST. KITTS AND NEVIS	VNM	VIET NAM
KOR	KOREA, REPUBLIC OF	VUT	VANUATU
KWT	KUWAIT	WLF	WALLIS AND FUTUNA
LAO	LAO PEOPLE'S DEMOCRATIC REP.	WSM	WESTERN SAMOA
LBN	LEBANON	YEM	YEMEN, REPUBLIC OF
LBR	LIBERIA	ZAF	SOUTH AFRICA
LBY	LIBYA	ZAR	ZAIRE
LCA	ST. LUCIA	ZMB	ZAMBIA
LKA	SRI LANKA	ZWE	ZIMBABWE