Information and Anti-American Attitudes*

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Abstract

This paper investigates how attitudes towards the United States are affected by provision of information. We generate a "panel" of attitudes in urban Pakistan, in which respondents are randomly exposed to fact-based statements describing the US in either a positive or negative light. Anti-American sentiment is high and heterogenous in our sample at the baseline, and systematically correlated with intended behavior (such as intended migration to the US). We find that revised attitudes are significantly different from baseline attitudes: attitudes are, on average, revised upward (downward) upon receipt of positive (negative) information, indicating that providing information had a meaningful effect on US favorability. The within-subject design and data on respondents' priors allows us to investigate the underlying mechanisms. We find that revisions are largely a result of salience-based updating. We reject unbiased information-based updating as the only source of revisions. In addition, a substantial proportion of individuals do not respond to the information. This heterogeneity in revision processes means that there is no convergence in attitudes following the provision of information.

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1 Introduction

Favorable attitudes towards the US are rarer in the Muslim world than anywhere else (Pew Global Attitudes Project; Gallup World Poll; Kohut and Stokes, 2006). This anti-American sentiment is a concern because it delegitimizes democratic values, weakens America's influence in foreign affairs,[1] and correlates positively with a greater incidence of international terrorism directed towards the US (Koehane and Katzenstein, 2007; Krueger and Maleckova, 2009). In addition, many of the intractable conflicts in the world today involve Muslim countries, and the ability of the US to influence the outcomes of these disputes depends on how it is viewed by the locals. Therefore, understanding the sources of the anti-American sentiment in the Muslim world has far-reaching political implications. However, there remains little direct evidence on what drives these attitudes and whether providing information may change them.

Some experts have argued that anti-Americanism is a cultural phenomenon arising from fundamental disagreements about social norms and values (Huntington, 1996). An alternate explanation is that American foreign policy drives anti-Americanism (Cole, 2006; Esposito, 2007). An additional factor in the Muslim world is the well-known anti-Western slant of media coverage and the manipulation of public perceptions by political leaders and agencies (Ajami, 2001; Reetz, 2006; Fair, 2010). This distortion of information may play an important role in the formation of attitudes and beliefs. As a result, policy-makers have argued that more information could improve attitudes toward the US in the Muslim world (see examples in Gentzkow and Shapiro, 2004). But existing work also shows that more information does not necessarily lead to convergence in attitudes (e.g., Lord et al. 1979). In this paper, we present evidence on whether providing information to urban Pakistani youth can shape their attitudes towards the US, and the mechanisms through which that may happen.

For this purpose, we conduct a randomized information-based experiment embedded within a survey with young urban Pakistanis from distinct backgrounds. We surveyed a random sample of 735 respondents from two large cities, and a sample of 1,691 students pursuing Bachelor's-equivalent degrees at three higher educational institutions in the two cities. The students at these educational institutions differ in their religious and socioeconomic backgrounds, and have varied exposure to Western and English-language news sources. Because of the institutional sorting based on socioeconomic and other characteristics, these sub-groups represent very different segments of the Pakistani society.

[1] Anti-American sentiment is generally cited as being a concern for US foreign policy in three main areas: (1) spurring terrorism toward the US or its citizens, (2) harming US commercial interests abroad, and (3) making it more difficult for the US to achieve its policy goals or to rally support for its specific political objectives (Lindberg and Nossel, 2007). While there is little robust evidence suggesting that anti-Americanism threatens cooperation to fight terror, there seems to be greater consensus that Anti-Americanism is associated with increased flows of personnel into terrorist recruitment streams (Charney and Yakatan, 2005; Berman, 2006), and with impeding diplomacy and inhibiting implementation of US policy (Robichaud and Goldbrenner, 2006).

We focus on Pakistan since it presents a particularly interesting case: First, it is considered a crucial partner in the war on terror.[2] Second, despite being a close geopolitical ally of the US and a major recipient of US foreign aid, there is widespread concern in US policy circles about the increasing anti-American sentiment in Pakistan.[3] Third, as shown in Figure 1, Pakistani attitudes towards the US are negative compared even to responses from other Muslim countries, and have become increasingly negative since 2006. We focus on youth because the Pakistani population is overwhelmingly young (72% are younger than 34, US Census Bureau, 2011), and give particular attention to elite groups–defined as college-level students–because these individuals will most likely exert a strong influence in their communities and some will eventually become policy makers and dictate future policy.

Our goal is twofold: *whether* information can impact attitudes towards the US, and if so, *how*. In addition, we are interested in understanding the heterogeneity in updating at the individual level. Therefore, our main survey employs a within-subject design. We first elicit respondents' baseline attitudes towards various countries and those countries' people. Next, as part of the experiment, survey respondents are randomly exposed to one of five possible information treatments, which provides them with fact-based statements describing the US in either a positive or negative light. In the next stage, the respondents' attitudes are re-elicited. In the final stage, information priors about the treatments are queried. This design allows us to explore the controlled effects of the information treatments and to make causal inferences about the role of information on public opinion. It mitigates potential endogeneity issues related to the self-selection of information sources. By employing both positive and negative information treatments, our design also allows us to investigate whether responses to the two kinds of information differ in some systematic ways. In addition, our within-subject design combined with the elicitation of priors allows us to uncover the mechanisms of attitude revision, which is particularly relevant from a policy point-of-view, and would be impossible to uncover using a between-subject design. In particular, we evaluate whether the changes in attitudes are driven by updating (biased or unbiased) of beliefs about US actions and/or changes in preferences/saliency attached to these actions. We also collect rich demographic data, which allow us to explore, at a micro level, how attitudes correlate with observable population characteristics, and whether the impact of information varies by the respondent's background.

[2]For example, US Defense Secretary Leon Panetta, while speaking to reporters on December 13, 2011 said "*Ultimately, we can't win the war in Afghanistan without being able to win in our relationship with Pakistan as well*". Similarly, his predecessor, Robert Gates, speaking at the American Enterprise Institute (AEI) on May 25, 2011, said, "*Pakistan is very important, not just because of Afghanistan but because of its nuclear weapons, because of the importance of stability in the subcontinent.*"

[3]The US Secretary of State, Hillary Clinton, in a speech to the Asia Society on February 18, 2011, when referring to the dire state of Pakistan's public finances said "*shocking, unjustified anti-Americanism will not resolve these problems*" (http://www.state.gov/secretary/rm/2011/02/156815.htm). Similarly, on her first visit to Pakistan on May 27, 2011, following the raid that killed Osama bin Laden, she commented "*Pakistan should understand that anti-Americanism and conspiracy theories will not make problems disappear*".

Anti-American sentiment is high in our sample: the mean favorability reported for the US is 2.58 (on a 0-10 scale, where 0 means very unfavorable and 10 means very favorable), which is worse than the average rating of all other countries for which attitudes were elicited, with the exception of India.[4] Opinions are also heterogeneous, with groups that are wealthier and more exposed to Western media holding relatively more favorable attitudes towards the US. US favorability is positively correlated with respondents' perceived likelihood of US taking certain positive actions (from the Pakistani perspective) in the future, casting doubt on the hypothesis that attitudes are merely a cultural construct. We also document a robust relationship between baseline US favorability and (actual and intended) behavior. First, respondents' stated likelihood of migrating to the US if an economic opportunity were to come along is (economically and statistically) higher for those with more favorable US attitudes. Second, respondents were presented with an incentivized question where they could donate Rs. 50 (roughly 0.60 USD) to a charity. We find that respondents with more favorable US attitudes are significantly less likely to contribute to a conservative charity, and more likely to donate to a secular charity.

Turning to the experimental results, we find that respondents change their attitudes toward the US after being exposed to both positive and negative information: attitudes are, on average, revised up (down) for positive (negative) information about the US.[5] Moreover, average revisions are substantial, varying between 0.5% and 29% of the standard deviation of the baseline attitudes. The average revisions, however, mask the heterogeneity in response to the information. Nearly half of the respondents in our sample do not revise their attitudes. Notably, the propensity to revise attitudes is higher for students in the more selective Western-style university, and for those more proficient in English.

Policy-makers are interested not only in whether information can impact attitudes, but also the channels through which that may happen. To shed light on that, we first outline a model of revision of attitudes in light of new information about US actions, with two possible channels: (1) change in preferences for US actions, and (2) updating of beliefs about the likelihood of those actions. The first channel would suggest that respondents respond to the information even if they were ex-ante aware of it, by changing their preferences (i.e., how much they value some specific action) because of salience and/or availability bias (Tversky and Kahneman, 1973; Schwarz and Vaughn, 2002; Dellavigna, 2009). The second channel is a pure information acquisition story: respondents revise their attitudes because the new information changes their beliefs. Note that the two channels have vastly different policy prescriptions. The latter would suggest that one-time information campaigns may be sufficient, while the frequency and timing of the intervention

[4] We adopt a direct elicitation approach of attitudes. See Bursztyn et al. (2014) for an indirect revealed preference approach.

[5] We find an impact on attitudes towards other countries as well, in a treatment where relevant information about them is presented to respondents. This indicates that the our results are not US-specific. This also alleviates the concern that the effects are driven by an experimenter demand effect (something that is discussed in more detail later).

would matter if updating were a result of saliency. Whether information leads to convergence in attitudes would partly depend on the extent to which information is processed in an unbiased way.[6]

Data on respondents' priors about the information allows us to investigate the channels. The average updating of respondents with positive priors (i.e., those who thought more positively about the US than is warranted by the facts provided to them in the treatment) –roughly 11% of our sample– and of those with negative priors (~54% of the sample) is directionally consistent with unbiased updating. However, these average revisions mask substantial heterogeneity in revisions, which appear to be more consistent with salience-based updating: (1) respondents who are ex-ante aware of the information have average revisions that are similar to those of their counterparts for whom the treatments are new information (though this first group is less likely to revise their attitudes), and (2) respondents' revisions depend on the inherent nature of the information, irrespective of their prior– respondents in the positive (negative) treatment are much more likely to revise upwards (downwards), conditional on their priors. In addition, we find that at least 29% of respondents have non-malleable attitudes- they do not revise their attitudes even when the provided information was ex-ante unknown. Conditional on priors and treatment types, we find that respondents studying in less conservative institutions, those proficient in English, and those knowledgeable about foreign affairs – all endogenous variables – are more likely to revise their attitudes and to do so positively. Overall, we can reject unbiased information-based updating as the only source of revisions.

Our findings suggest that (i) public opinions are not purely a cultural phenomenon, and are in part shaped by information about recent events, (ii) they are malleable in the face of new information, (iii) information on both positive and negative actions taken by the US affects Pakistanis' average opinions of America in the expected direction, and (iv) response to information is not uniform and seem to result primarily from saliency. Overall, this makes the case for dissemination of accurate information about various aspects of the Pakistan-US relationship, particularly those that are omitted or manipulated by the local media and agencies.

We test the robustness of various features of the study design. For this purpose, at a later date, we conducted a follow-up study at one of the institutions that consisted of two surveys fielded a month apart. The follow-up consisted of both a within- and between- subject design. Importantly, we can rule out an experimenter demand effect driving our main results. While our main results focus on the immediate impacts of information, we investigate the medium-term impact of information in the follow-up survey, but find inconclusive results.

Our paper is related to the literature focusing on how information influences attitudes, mostly in the political domain. There is a growing literature on the role of media exposure on political

[6]There is evidence that individuals have a propensity to discount new information if it is inconsistent with a prior belief; in that case, information may in fact lead to more dispersed and polarized beliefs (Lord, Ross, and Lepper, 1979; Glaeser, 2004; Mullainathan and Shleifer, 2005).

attitudes and behavior in the field and in the lab (e.g., Ansolabehere and Iyengar, 1995; Iyengar and McGrady, 2005; Gentzkow, 2006; DellaVigna and Kaplan, 2007; Gerber et al., 2009, 2011; DellaVigna and Gentzkow, 2010). A related literature investigates the impact of educational content on attitudes (e.g., Fisman et al., 2009; Clots-Figueiras and Masella, 2013; Cantoni et al., 2014). Finally, other work has investigated how attitudes change in light of various experiences (e.g., Mullainathan and Washington, 2009; Beath et al. 2012). More generally, DellaVigna and Gentzkow (2010) review the empirical literature on "persuasion" in various domains, though their focus is mostly on behaviors rather than attitudes. Our paper complements this general literature by providing causal evidence of the effect of exogenously-provided information on attitudes toward the US in a context which is both very policy-relevant and where attitudes are extremely negative (and thought to be hard to change). Importantly, and unlike most of the studies cited above, our paper also provides evidence on the mechanisms leading to the observed changes in attitude. Our unique data collection methodology which elicits information priors directly from respondents – data that are otherwise not available and impossible to infer directly from observational data – allows us to investigate whether updating is a result of saliency or information-processing, and whether such information processing is biased.[7]

Finally, as we model attitudes as a composite element of the beliefs an individual holds toward the US actions (past and future) and his preferences toward these actions, our analysis relates to existing work looking at how information influences beliefs and/or preferences. Regarding the formation of beliefs, existing empirical and theoretical work evaluates whether people are Bayesian (e.g., El-Gamal and Grether, 1995), and why belief updating may depart from the Bayesian model by providing explanations such as the use of heuristics (e.g., Tversky and Kanheman, 1973; 1974), confirmatory bias (e.g., Rabin and Schrag, 1999), the failure to account for information repetition (e.g., DeMarzo et al. 2003), or limited memory (e.g., Mullainathan, 2002; Shapiro, 2006). Regarding preferences, another strand of theoretical and empirical work explores how information may change individual tastes (e.g., Becker and Murphy; 1993; Druckman and Lupia, 2000; Glaeser, 2005; Bassi and Rasul, 2015). In our data, we find evidence of both changes in beliefs and preferences in response to information.

This paper is organized as follows. In Section 2, we present a simple model of attitude formation, and outline the possible channels through which our intervention may lead to a (systematic) revision of attitudes. We describe the sample, study design and data collection methodology in Section 3. The empirical analysis is presented in Section 4. Section 5 sheds light on the mechanisms that lead to revisions, and the underlying heterogeneity in the revision

[7]There is also a small related literature focusing on the correlates of anti-Americanism, primarily based on cross-country comparisons. For example, Gentzkow and Shapiro (2004) find only a limited role of media use or education on attitudes, but the type of media (e.g., CNN vs. Al Jazeera) and education systems matter. Blaydes and Linzer (2012) find that higher intensity of Secular-Islamist political competition increases anti-Americanism. Zirkhov (2014) report an inverse-U-shape relationship between anti-Americanism and Human Development Index.

process. Robustness checks are presented in Section 6. Finally, Section 7 concludes.

2 Model of Attitude Formation

In this section, we present a simple model of attitude formation. The goal is to illustrate the potential channels through which the provision of information may lead to a revision of attitudes. For individual i at time t, A_{it} is an individual-specific measure of attitude towards the US. It is a function of a set of past and future US actions Ω_{it} judged relevant to individual i at time t.

$$A_{it} = f_{it}(\Omega_{it}),$$

where f_{it} is a function that maps onto the reals, and A_{it} is a continuous variable with a higher value indicating a more favorable attitude. Ω_{it} is indexed by t because individual i may change, over time, what he thinks is relevant to form his attitude. Similarly f_{it} is indexed by t since the mapping function can be time-variant.

Actions are assumed to be numeric. Individual i may face uncertainty about the numeric values of both past and future actions of the US. Let $P_{it}(\Omega_{it})$ denote the subjective distribution that respondent i possesses at time t about the US actions. Individual i's attitude for the US at time t is given by:

$$A_{it} = \int f_{it}(\Omega_{it}) dP_{it}(\Omega_{it}).$$

Attitude is therefore a combination of preferences and beliefs over actions.[8]

For ease of presentation, we remove the subscript i below but it is understood that attitude and its formation are individual-specific. Let now assume that the function $f_{it}(.)$ is linear and separable in action, and that, at time t, we have $\Omega_{it} = \{a_1, a_2\}$. We can rewrite the attitude as follows:

$$A_t = \alpha_{1t} \int a_1 dP_t(a_1) + \alpha_{2t} \int a_2 dP_t(a_2) = \alpha_{1t} E_t(a_1) + \alpha_{2t} E_t(a_2), \quad (1)$$

where α_{jt} $(j = 1, 2)$ is the preference parameter, or weight, assigned by individual i to action a_j at time t, and $E_t(.)$ is i's subjective expectation at time t.

Our experimental setup provides information about an action that the US has taken in the past, i.e., a message $m = \{a_1 = K\}$. We consider specifically a message about the action a_1 that enters directly i's attitude. Note that the results would be similar if we consider an action that

[8] Note that in our survey, individuals are asked to express their preferences on a discrete scale from 0 to 10. A_{it} is assumed to be continuous, taking values in the range $[A_{Li}, A_{Hi}]$. We assume that respondents use the function $r(a)$ that rounds the continuous variable A_{it} to the nearest integer to report their opinion $A_{it}^{reported}$ as follows:

$$A_{it}^{reported} = r(10 \times \frac{A_{it} - A_{Li}}{A_{Hi} - A_{Li}}).$$

does not directly enter i's attitude but that is perceived by i as being correlated with an action he cares about. We present below four different cases about how the message m may influence individual i's beliefs and/or preferences, i.e., the fundamentals of the attitude.

Case 1 ***Unbiased belief updating***. *We define an individual as exhibiting unbiased belief updating if*

- $m = \{a_1 = K\}$ and $E_t(a_1) \leq K$ implies that $E_{t+1}(a_1|m) \geq E_t(a_1)$.
- $m = \{a_1 = K\}$ and $E_t(a_1) > K$ implies that $E_{t+1}(a_1|m) < E_t(a_1)$.

Case 2 ***Biased belief updating***. *We define an individual as exhibiting biased belief updating if*

- $m = \{a_1 = K\}$ and $E_t(a_1) < K$ implies that $E_{t+1}(a_1|m) < E_t(a_1)$.
- $m = \{a_1 = K\}$ and $E_t(a_1) > K$ implies that $E_{t+1}(a_1|m) > E_t(a_1)$.

Case 3 ***Saliency bias***. *We define an individual as exhibiting saliency bias if* $m = \{a_1 = K\}$ *implies that* $\alpha_{i1t+1} \neq \alpha_{i1t}$.

Case 4 ***Prior formation.*** *We define an individual as exhibiting prior formation if* $\Omega_{it} = \{a_2\}$ *in which case* $E_t(a_1)$ *is not defined, and if* $m = \{a_1 = K\}$ *implies that the individual forms expectations* $E_{t+1}(a_1|m)$.

In case 1 of unbiased updating, an individual with prior belief that has lower value (resp. higher value) of the action than the information provided in the message would revise her beliefs upwards (resp. downward). In case 2 of biased updating, an individual with prior beliefs that has lower value (resp. higher value) of the action than the information provided in the message would revise her beliefs downward (resp. upward). Confirmatory bias is a specific example. Case 3 points to a case in which the message changes individuals' preferences by making an action salient. Individual i may for example increase in absolute value the weight associated with a_1 after receiving information about it. Case 4 points to a case in which an individual had no prior knowledge about a_1, and information about it causes him to formulate an expectation $E_{t+1}(a_1|m)$. Note that this case is observationally similar to a specific case of saliency bias, where $\alpha_{i1t} = 0$ (no weight is put on the action initially) and $\alpha_{i1t+1} \neq 0$. Though, in case 4, the information is impacting beliefs, not preferences. Note that cases 1 and 2 are mutually exclusive. Likewise, cases 1 and 4, and cases 2 and 4 are mutually exclusive.

The revised attitude after receiving message m is given by:

$$A_{t+1} = \alpha_{1t+1}E_{t+1}(a_1|m) + \alpha_{2t+1}E_{t+1}(a_2|m),$$

Without loss of generality, for the rest of this section, assume $\alpha_{1t} > 0$. Here is a set of implications regarding the revisions of attitude following a message m.

Implication 1: Individuals whose attitude depends on US action a_1 and have non-biased belief updating (case 1) and do not exhibit saliency bias will revise their attitude upward when the message has a higher value about the action than their prior expectation, and downward when the message has a lower value than their prior. That is,

$$\begin{aligned} E_t(a_1) &\leq K \Longrightarrow A_{it+1} \geq A_{it}, \\ E_t(a_1) &\geq K \Longrightarrow A_{it+1} \leq A_{it}. \end{aligned}$$

Implication 2: Individuals whose attitude depends on US action a_1 and exhibit biased updating (case 2) and do not exhibit saliency bias will revise their attitude downward when the message has a higher value about the action than their prior expectation, and upward when the message has lower value about the action than their prior expectation. That is,

$$\begin{aligned} E_t(a_1) &\geq K \Longrightarrow A_{it+1} \geq A_{it}, \\ E_t(a_1) &\leq K \Longrightarrow A_{it+1} \leq A_{it}. \end{aligned}$$

Implication 3: Individuals with saliency bias (case 3) and for whom the message contains no added information ($E_t(a_1) = K$) will revise their attitude following a message m. That is,

$$A_{it+1} \neq A_{it} \text{ when } E_t(a_1) = K.$$

Implication 4: Individuals who exhibit prior formation about a_1 (case 4) and do not exhibit biased saliency bias will revise their attitude upward following message m. That is,

$$A_{it} = \alpha_{2t} E_t(a_2) < \alpha_{1t} E_{t+1}(a_1|m) + \alpha_{2t} E_t(a_2) = A_{it+1}.$$

In the implications above, we have abstracted from the slant with which the message m may be delivered. The same message content m can be slanted in a positive or negative manner (e.g., Gentzkow and Shapiro, 2006). We expect biased belief updating and saliency bias to be more prevalent, and the extent of the bias to be greater, when a message m is slanted.

3 Data

3.1 Survey Administration

We conducted our study in one Islamic University and two modern Universities located in Islamabad/Rawalpindi and Lahore between May and October 2010 (*University sample*). In addition, a random sample of the populations in the two cities was also surveyed between July and December 2010 (*City sample*). The Islamabad/Rawalpindi metropolitan area is the third largest in the country with a population of about 4.5 million. Lahore is the capital of the Punjab province and the country's second largest city with about 10 million inhabitants. Punjabis are the dominant ethnic group in both metropolitan areas. We focus on two cities for practical reasons for the data collection.

Data collection was conducted by the Survey Center (SC) affiliated with the Islamic University.[9] The SC Team approached the schools for consent, and informed them that the study dealt with decision-making and opinions/expectations of Pakistani youth. Furthermore, they notified the schools that the study was being conducted on behalf of an international research organization. A copy of the questionnaire was provided to the contact person of each institution for vetting (however, the contact person could not keep a copy of the questionnaire with them).

The institutions in our sample are among the five largest and best-regarded institutions in the relevant category in that city. Among all the institutions we contacted, one university declined participation. At each of the schools, a random sample of students was selected to participate based on a listing of students provided by the registrar's office. Average response rate was about 70%. Data collection took about a week at the other institutions. To signal credibility of the study to the students, members of the staff of the institution at which data was being collected were also hired for the data collection. Overall 1,691 students participated in the study. After dropping 29 students with missing data for the key variables, we are left with a total of 1,662 students, of whom 477 were female.

In addition, for the *City* sample, a random sample of 735 respondents from the two cities was also surveyed. The sampling frame for the two cities was provided by the Pakistan Bureau of Statistics. The surveys were conducted face-to-face by enumerators of the same gender as the respondent. The overall response rate was 38%, with the refusal rate being higher for females. In the analysis, we pool the data from the two urban centers, since there are no qualitative differences between them in observables and attitudes. After restricting to respondents with non-missing data for the main variables, we are left with 724 respondents, of whom 335 were female.

[9] Besides having ample experience in conducting surveys, another main reason for hiring the IU Survey Center for the data collection was that they were well-connected to both the secular and religious institutions in the two cities. We believe this helped us in obtaining consent from the different types of schools for the data collection.

To test the robustness of specific features of the study design used in the main study, we also conducted a follow-up study in March-April 2013 at one of the institutions (the Liberal University). This study was conducted on a fresh sample of 649 students, with no overlap with the original study.

3.2 Description of Schools

Islamic Universities provide a liberal arts curriculum combined with Islamic teachings and courses. For example, Economics is taught with a focus on Islamic principles of finance. These universities have segregated campuses for males and females, and classes are taught in Arabic or English. These institutions tend to be public and, therefore, are accessible to low and middle income groups. Females account for about 40% of the student body at the Islamic University that we surveyed.

The modern universities are similar to American colleges. They provide a liberal arts curriculum, classes are taught in English, and campuses are mixed genders. Tuition at such institutions tends to be very expensive so they cater to wealthy students. Females account for 15-30 percent of the student body at the two institutions that we surveyed. However, because they differ in their selectivity, students' characteristics and tuition level (as we show below), we classify the two universities into two separate groups: a Selective Liberal University and a Liberal University. The Selective Liberal University, as indicated by its name, is more selective and liberal than the Liberal University, and caters to a higher socioeconomic segment within the elite section of the society. Relative to Islamic Universities, the modern Universities are quite selective and their entry requirements are such that they primarily accept students who graduate from private high schools (which tend to have higher academic standards).

3.3 Sample Characteristics

Table 1 presents the characteristics of students at the three institutions in the first three columns, and of the City sample in the fourth column. The sorting in terms of observables into these institutions is very drastic but as expected. As we move across the columns from Selective Liberal University towards Islamic University in Table 1, the average socioeconomic characteristics deteriorate. If we compare the students to the City sample, we see that all institutions fare better in terms of most indicators of wealth than the general populations in the two cities.

Students from the various groups also report different levels of self-reported religiosity and the number of prayers per day. Students were asked to rate how religious they considered themselves on a scale from 0 (not religious at all) to 10 (very religious). Religiosity increases as we move across the first three columns of Table 1: the average religiosity is 5.4 for Selective Liberal University students, 5.9 for Liberal University students, and 6.3 for Islamic University students.

The former also pray much less frequently every day. Average religiosity and religious practices of the City respondents are similar to those of Islamic University students.

Finally, exposure to English-language news sources declines and consumption of conservative news sources increases as we move from column (1) to column (3).[10] Remarkably, Islamic University students are almost twice as likely as the City sample respondents to get their news from conservative right-wing sources.

The survey elicited respondents' beliefs about the likelihood that the US would take certain actions over the next five years. The table reports the mean likelihood (on a 0-100 scale) as reported by these students. We see that, on average, students at the Selective Liberal University have the most favorable beliefs about these outcomes. For example, the mean likelihood that Selective Liberal University students assign to the US stopping drone attacks in Pakistan over the next 5 years is about a third, compared with a mean likelihood of 26% for Liberal University and Islamic University students, and 16% for the City sample.

The 2013 follow-up study at the Liberal University (Follow-up sample) was conducted in 21 different classes, at the end of class time. The classes were randomly chosen by the registrar's office, with response rates being close to 100%. Column (5) of Table 1 shows the characteristics of the 649 students in the follow-up survey. Only a subset of demographic characteristics were collected. Comparing the statistics with those in column (2) of the table, we see that the follow-up sample is similar in observables to the initial sample at Liberal University (with the exception of mean religiosity in the follow-up sample being higher, and age slightly lower).

3.4 Study Design

The details of data collection are presented in the Appendix. We now describe the relevant part of the survey that was conducted in 2010; the follow-up survey is described later in section 6, when we present robustness analysis. The 2010 survey essentially consists of three stages.

1. *Baseline Attitudes:* We first survey respondents about their attitudes towards various countries, those countries' people, and various Pakistani institutions. Unlike existing polls, such as those by the Pew Global Attitudes Project, which elicit attitudes by employing either a coarse Likert scale (very favorable, somewhat favorable, somewhat unfavorable, very unfavorable) or a simple "yes/no" response, we use the following wording: "*On a scale from 0 to 10, where 0 means very unfavorable and 10 means very favorable, please tell me your opinion of ...*". The advantage of this alternate wording is that it allows the responses to be cardinal and interpersonally comparable, and allows respondents to express the intensity of their attitudes in a more refined manner.[11]

[10] The classification of news sources as conservative is done in a subjective manner, since no objective metrics exist. We classify Awsaaf, Zarb-e-Momin, Nawai Waqt, and Al Jazeerah as conservative news sources.

[11] Bursztyn et al. (2014) use a revealed preference approach to elicit attitudes towards the US. Their approach

Attitudes were elicited for: the United States; Saudi Arabia; India; China; the United Kingdom; Americans; Chinese people; Pakistani government; Pakistani Military; and Pakistan Political Parties. We refer to these attitudes as "*baseline attitudes*".

2. *Information Treatment:* Next, we randomly provided respondents with one of five possible information treatments (Table 2). The baseline attitudes and information treatment were separated by a battery of questions on social and political issues. Each treatment contained two or three pieces of fact-based information along with the news source providing the information. The first four treatments could be characterized as highlighting a positive or negative aspect of the US-Pakistan relationship (from a Pakistani perspective). Treatment 1 (T1) provided information on US assistance to Pakistan with a negative slant (pointing out for example that, during 2009, the financial assistance that the US provided to Israel was three times as much as the assistance the US provided to Pakistan), while T3 provided information on US assistance in a positive way (pointing out for example that, in 2007, the funds the United States disbursed to Pakistan were 21 times larger than the funds China disbursed to Pakistan, and as many as 27 times the amount of funds Saudi Arabia disbursed to Pakistan; China and Saudi Arabia are considered closed allies of Pakistan). Similarly, T2 provided information on drone attacks (negative), T4 provided information on humanitarian aid from US-based organizations (positive). Therefore, T1 and T2 provide information that most would agree is negative about the US, while T3 and T4 provide information that most would agree is positive about the US.[12] T5 provides information about countries other than the US, and is used as a placebo treatment.

3. *Revised Attitudes:* Immediately after being provided with the information, some of the baseline attitudes were re-elicited as follows: "*We would now like to re-elicit some of your attitudes that were asked earlier. On a scale from 0 to 10, where 0 means very unfavorable and 10 means very favorable, please tell me your opinion of...*". Respondents were encouraged to refer to their previous responses when reporting their attitudes. We refer to these as "*revised attitudes*".

4. *Information Priors:* Since the effect of information on attitudes (or beliefs) generally depends on how new the information is, we also collected data on the respondent's prior about the information, i.e., we asked the respondent if each piece of information that we

is quite novel and has certain advantages. However, it yields a measure of anti-Americanism that is binary. The limited variation in the measure makes it unappealing for our setting, where we are interested in revisions in attitudes.

[12] However, there could be a perception that foreign assistance or humanitarian aid is used politically by the US to enslave a country, and greater aid may instead be construed as an example of "capitalist or imperialist exploitation" (Kizilbash, 1988). In that case, T3 (which reveals that US assistance to Pakistan is large relative to other donors) and T4 (which reveals the extent of humanitarian aid work by US-based organizations) may be interpreted as negative information treatments. This is an empirical question, which we investigate in Section 4.

provided to them was already known, or whether it had a value that was higher or lower than their ex ante expectation about it.

For example, consider the first piece of information provided in Treatment 1: "During 2009, the financial assistance that the US provided to Israel was three times as much as the assistance the US provided to Pakistan (Source: US Aid)". We elicited respondents' priors about this news item as follows: "*Before we gave you this information, did you think that, in 2009, the financial assistance that the US provided to Israel was more than, less than or about three times as much as the assistance the US provided to Pakistan?*".

We refer to these as "*information priors*". While this is not the most natural way of eliciting priors, this elicitation strategy was intentional on our part. One, respondents could easily go back and forth in the questionnaire, and so could have easily revised their priors if they were elicited before the information had been revealed. Second, because of concerns that respondents may anchor to numbers presented to them in the information treatments (Tversky and Kahneman, 1974), we chose to elicit priors this way instead of asking them for a point response. In the follow-up study, comparing priors of a control and treatment group, we test for the robustness of our design (see section 6). Note that, with the exception of T4, our elicitation method does not allow respondents to not have a prior. The underlying assumption is that a typical Pakistani is aware of the existence of drone attacks, and that the US provides financial aid to Pakistan and other countries. These aspects of the Pakistan-US relationship were (and are) commonly discussed in the local media, and it is therefore natural to assume that people have a prior about them. It is less clear that many people were aware of the US humanitarian aid programs; hence we allowed respondents to express the lack of a prior in T4. We discuss this feature of our design in more detail in our robustness section (Section 6).

Three points about the study design deserve further discussion. First, respondents are *randomly* allocated to an information treatment. Since individuals self-select their sources of information in the real world, randomly exposing them to an information treatment gets around this endogeneity issue and allows us to evaluate the causal impact of information on attitudes**.** Appendix Table A1 shows the characteristics across the treatment groups: with the exception of religiosity (which is slightly higher for T1) and the proportion females, the sample is balanced across the treatments.[13] Second, we employ both *positive and negative information treatments.* This allows us to investigate whether responses to the two kinds of information differ in some systematic way. In principle, having a study design with one positive and one negative information treatment would have sufficed. However, given that we know little about what kinds of

[13]The differences, while statistically significant, are rather small. Moreover, we control for these characteristics in our individual-level analysis.

information matter for attitudes, we chose to have five different information treatments. The two negative information treatments focus on very different aspects: the relatively low financial assistance that Pakistan receives from the US (relative to some other recipient countries), and different aspects of the drone program. The two positive treatments focused on either the humanitarian work being done by US organizations or the relatively high financial aid Pakistan receives from the US (relative to some other donors). Including treatments with such a wide spectrum of information then reduces the likelihood of respondents not finding any of these information treatments relevant (in which case we would observe no causal effect of information).[14] While it would have been useful for our analysis to present facts about the same underlying actions in a positive and negative slant, it is difficult to do so in practice if one wants to broaden the type of actions considered. For example, drone attacks are inherently perceived as negative while humanitarian aid is viewed positively. In our setup, a "negative" message can be one that contains either negative facts or neutral facts with a negative slant. Whether and how the response to the same information varies depending on the slant of the message is clearly an interesting and relevant question for understanding attitude formation, but one that our study is unable to shed light on.

Finally, we employ a *within-subject design* that allows us to study the mechanisms of attitude revision at the individual level. From a policy aspect, we are interested not only in whether attitudes can be impacted by information provision but also in *how* that might happen. One concern with the within-subject design may be the experimenter demand effect, that is, respondents may revise their attitudes upon receipt of information simply because they believe doing so constitutes appropriate behavior (Zizzo, 2010). This would lead to larger responsiveness in the within- versus the between- design. On the other hand, respondents in the within-subject design may anchor their responses to the baseline level, and may be less susceptible to revise their attitudes upon provision of information- this would bias the revisions downwards. For our purposes, the upward bias from the experimenter-demand effect would be a bigger concern. While our main analysis uses the within-subject design, section 6 presents results from the follow-up study which employs both a within- and between- subject design, allowing us to investigate the robustness of our study design.

[14] Since there is little prior knowledge of how relevant different kinds of information are for attitudes formation, we restricted each information treatment to either positive information or negative information about the US, but not both. As we show in the model section, restricting the treatments to either positive (that is, $\alpha_t > 0$) or negative information allows us to get clear predictions for how attitudes should be revised. Under reasonable assumptions, that would generally not be possible if a treatment included both kinds of information.

4 Empirical Analysis

We first describe the baseline attitudes and how they correlate with other observable characteristics and behavior. We then present the average treatment effects and next look at the mechanisms and heterogeneity in the revision process.

4.1 Baseline Attitudes

Anti-American sentiment is high in our sample: the first row of Table 3 shows that the mean favorability reported for the US in the full sample is 2.58, which is worse than the average rating of all other countries rated, with the exception of India (2.02). Saudi Arabia and China are the countries with the highest rating (average rating of 7.88 and 6.91, respectively). Opinions of the American people are more positive than those of the US (3.8 versus 2.6, with the difference being statistically significant at 1%). The large standard deviations indicate that there is considerable heterogeneity in attitudes in our sample.

Looking at US mean favorability across the groups in column 1, we see that students at the Selective Liberal University have the most favorable opinion of the US (3.9), followed by the Liberal University students (2.7), the Islamic University students (2.3), and the City respondents (2.2). The attitudes are statistically different across the groups (p-value$<$0.001 for F-test). There is considerable variation in attitudes even within groups, as indicated by the large standard deviations of attitudes within each group.

Figure 2 further underscores the extent of heterogeneity in attitudes both across and within institutions. The modal US attitude at the Selective Liberal University is 4 (on a 0-10 scale), and zero for each of the other groups; while only 14.0 percent of the Selective Liberal University students assign a zero favorability to the US, 35-40% of the students at the Liberal and Islamic University, and 54 percent of the City respondents do so. As can be seen in the figure, a non-trivial proportion of respondents in each of the groups assign an attitude of greater than 5 to the US: 26.3% of Selective Liberal University students assign the US a favorability of greater than 5, while the corresponding proportions are 19.2%, 14.6%, and 15.9% for respondents at the Liberal University, Islamic University, and City sample, respectively.

4.1.1 Correlates of Attitudes

The large standard deviations of the attitudes in the full sample, as well as within each institution, indicate that attitudes are quite heterogeneous. While there is no evidence of a definite link between poverty, education, and terrorism in the existing literature (Krueger and Maleckova, 2003; Abadie, 2006; Berrebi, 2007; Krueger, 2007), particular educational systems may mediate the political attitudes of their students (Gentzkow and Shapiro, 2004). As shown in Table 3, students enrolled at institutions with more religious and conservative curricula view the US less

favorably. However, even at the most conservative institutions—the Islamic University—the mean opinion is slightly higher than in the City sample. This suggests that education, regardless of its content, is positively correlated with US favorability, at least in our sample.

However, since students select their schools, we cannot conclude that educational content leads to differences in US favorability. Table 4 shows how some of these characteristics correlate with public opinion towards the US and Americans. We see that income, parents' years of schooling, and exposure to English-language media are positively associated with US favorability. On the other hand, exposure to conservative media, religiosity and being influenced by a religious leader are negatively associated with US favorability.[15] It is noteworthy that we do not observe any significant differences in US favorability by gender or by foreign affairs knowledge (as measured by a battery of six questions). While the relationship is not causal, the lack of significance between knowledge and attitude suggests that being better informed does not improve US favorability.

These relationships generally hold in a multivariate regression framework, reported in the first column of Appendix Table A2. Column (1) shows even a statistically significant negative relationship between US attitude and foreign affair knowledge. Columns (2) and (3) of the table also include respondents' perceived likelihood of US taking certain actions in the next five years as independent variables. We see that nearly all these variables are significant and of the expected sign, indicative of attitudes not merely being a cultural construct but being systematically associated with subjective perceptions about future actions of the US. The coefficients on these variables are sizable: an increase in the perceived likelihood from zero to absolute certainty (that is, 100 percent) of the US having a balanced approach to the Palestinian conflict in the next five years is associated with a 2 point increase (on a 0-10 scale), on average, in the attitude towards the US. Likewise an increase in the likelihood from 0 to 100 of the US increasing its (military and civilian) presence in Pakistan is associated with a 0.6 point decline, on average, in the US attitude.

4.1.2 Link with Behavior

Anti-Americanism is cited as a concern because of the belief that it is linked with behavior that could have adverse consequences for the US. The existing evidence on this (cited in the introduction) is usually indirect and, at best, suggestive. Our survey included a few questions that collected data on behavioral outcomes that allows us to investigate the link between attitudes towards the US and behavior.

The first question elicits respondents' willingness to migrate to the US: "*Now consider a situation where, at the age of 30, you got a job offer that requires you to move to United States. What is the percent chance (or chances out of 100) that you would move to United States and*

[15] Blaydes and Linzer (2012), in their analysis of attitudes towards the US among Muslims in 21 countries, find similar correlations between anti-Americanism and religiosity and media exposure.

take up this job offer if the job pays you X times the amount you expect to earn at age 30 [reported earlier in the survey]?", where $X = \{2, 5, 10\}$. The average probability in the sample for migrating to the US when the job pays two times as much is 38 percent, which jumps to 62 percent when the job pays ten times as much. The first three columns of Table 5 regress the response to this question onto US attitudes and various demographic controls. Notably, the coefficient on baseline US attitude is precisely estimated, positive and economically meaningful: a one standard deviation increase in attitudes is associated with about a 6.5 percentage point increase in the likelihood of moving to the US when the job offer is twice as much as expected salary. Students enrolled in the institutions are significantly more likely to report a higher likelihood of moving to the US, relative to the City sample respondents. Within the institutions, students enrolled at the more conservative schools assign a higher likelihood of moving to the US, especially at higher levels of earnings.

The second outcome that we look at is an incentivized question where respondents decide which charity to donate Rs. 50 (~0.60 USD) to. We presented respondents with a list of 15 charities that operated in Pakistan and were fairly well-known. Respondents also had the option of not donating to any charity in which case no one, including the respondent, got Rs. 50. This was an incentivized question that was fielded in the universities only, and payments were actually made to the charities. The charities ranged from secular charities such as the UNICEF to conservative charities. About 44.3 percent of the sample chose a secular charity, and 8.2 percent chose a conservative charity, with the remaining choosing local charities associated with political parties and mainstream religious organizations. The dependent variable in column 4 (5) of Table 5 is a dummy variable (on a 0-100 scale) for whether the respondent donates to a secular (conservative) charity. We see that baseline US attitude is negatively associated with donating to a conservative charity, and positively related to donating to a secular charity. The estimates are statistically significant and economically meaningful: a one standard deviation increase in attitude towards the US is associated with a 2.1 percentage point greater likelihood of donating to a secular charity.

Overall, this indicates that attitudes towards the US are correlated with intended and actual behavior.

4.2 Treatment Effect

We next test if our information treatments had an effect on attitudes. As we explain in Section 2, our treatments should lead to systematic revisions in attitudes if respondents find the information relevant (that is, $m \in \Omega_{it}$) and if any of the four cases outlined in that section apply. The mechanisms that may lead to revision are investigated in the next section. In the analysis that follows, we drop observations where respondents revise their US attitudes by 9 points or more (on a 0-10 scale), under the assumption that in such instances respondents either did not answer

the questions seriously, made errors in answering, or did not understand the instructions. This drops 70 of the 2,386 observations (that is, 2.9% of the observations). Keeping them in the analysis has little impact on the results.

Treatments 1 and 2 present arguably negative information about the US, while Treatments 3 and 4 present positive information about the US. Treatment 5, on the other hand, does not provide direct information about US actions; we return to it in the next section. The average responsiveness to the treatments, in principle, should depend on the distribution of respondents' priors about the presented information. Figure 3 reports the mean baseline and revised attitudes of the US, by treatment. We see that revised attitudes differ significantly from the baseline attitudes for treatments 2, 3, and 4, indicating that these treatments had a significant effect on average attitudes towards the US. Average revision is negative for T2 (one of the negative treatments), and positive for both the positive treatments. Figure 4 shows the whole distribution of baseline and revised attitudes by treatment types. It shows that the average downward revision in the negative treatment is driven by a shift of attitudes away from the middle range (3 to 5) toward zero, while the average upward revision in the positive treatment is driven by a shift of attitudes away from zero and toward attitudes of 5 to 10.

Table 6 also reports the average and median revisions (and corresponding effect sizes) by treatment. The revisions are substantial, varying from a statistically significant downward average revision of 0.43 points in Treatment 2 (which corresponds to ~15% of the standard deviation in baseline US attitudes) to an upward revision of 0.85 in Treatment 4 (which corresponds to 29% of the baseline standard deviation in attitudes). T2 leads to a downward revision on average, while T3 and T4 on average lead to upward revisions in attitude, which suggests that respondents meaningfully revised their attitudes in response to both positive and negative information (coefficient on T1 is negative, but not statistically different from zero).[16] These results suggest that anti-American sentiment is not entirely based on fundamental cultural values (Huntington, 1996), and that it is malleable.

In addition to showing the average treatment effects, Table 6 also shows the standard deviations for the baseline and revised attitudes toward the US. For each treatment, we cannot reject equality of baseline and revised standard deviations, suggesting that attitudes do not converge upon receipt of information. This could possibly be a result of heterogeneity in the revision process, which we investigate in the next section.

[16] That respondents, on average, revise their attitudes positively in T3 (which reveals that US assistance to Pakistan is large relative to other donors) and in T4 (which reveals the extent of humanitarian aid work by US-based organizations) suggests that, on average, greater aid and financial assistance from the US are in fact inferred as positive steps, and not as measures of "imperialist exploitation" (Kizilbash, 1988). Therefore, the empirical results seem to be consistent with our categorization of these treatments as positive ones.

Revision of attitudes for other countries Our focus has been on attitudes toward the US but one may wonder if attitudes toward other countries are similarly malleable. Treatment 5 in the initial study provides negative information about Saudi Arabia and China, two countries that are considered close allies of Pakistan. Indeed, Table 3 shows that the average attitude is high for those two countries: 7.9 for Saudi Arabia and 6.9 for China. The first piece of information of Treatment 5 emphasizes that the amount of funds Saudi Arabia disbursed to Pakistan were quite low compared to those Pakistan received from the US, while the second piece of information mentions restrictions imposed on Muslims in China. Table A3 shows a significant decrease, on average, in attitudes for both China (of 1.8) and Saudi Arabia (of 0.5) for respondents allocated to Treatment 5.

This suggests again that respondents' attitudes are malleable: they are responsive to negative information about countries which are positively viewed. It also indicates that the treatment effect is not US-specific. The fact that respondents changed attitudes towards these other countries mollifies the concern that the impacts are driven by an experimenter demand effect.

5 Mechanisms and Heterogeneity in Treatment Effect

The previous section shows interesting and sizable average treatment effects. The within-subject design and the elicitation of information priors allow us to investigate more precisely the heterogeneity in the revision process and the drivers of it. We investigate this next.

5.1 Information Priors

As explained in Section 3.4, we collected data from respondents about their prior knowledge of the information, i.e., we asked the respondent if each piece of information that we provided to them was already known, or whether it was a positive or negative surprise for them. Note that what is "positive" or "negative" is potentially individual-specific and depends on the sign of the weight associated with the action in the attitude function. For example, some respondents may view greater US assistance to Pakistan as a positive action, while others may view that as a negative action. We do not have information to characterize each information treatment as positive or negative at the individual level, and hence use the average treatment effect to qualify the actions described in Treatments 1 and 2 as *negative*, and the actions described in Treatments 3 and 4 as *positive*. To illustrate this, consider Treatment 1 which consists of the following two pieces of information: (1) the financial assistance that the US provided to Israel in 2008 was three times as much as the assistance the US provided to Pakistan, and (2) the military aid that Pakistan had received from the US since 2001 came to half of Pakistan's costs of the war on terror. A respondent assigned to Treatment 1 is categorized as having a *positive prior* for the first piece of information if he reported that he thought Israel had received *less* than three times

as much assistance from the US than Pakistan. Similarly, he has a *positive prior* associated with the second piece of information if he thought that Pakistan's military aid from US covered *more* than half of its costs. Respondents who report that the information is in line with their prior beliefs are classified as having a *neutral* prior.[17]

Note that we elicit priors *after* respondents have seen the information. This was done primarily to make sure that the elicitation of priors did not interfere in any way with the revision of attitudes. In the robustness section (section 6), we investigate this feature of the design.

Table 7 presents the distribution of priors for each piece of information in each treatment; the corresponding questions that were used to elicit priors are presented in the Appendix. We see that negative priors are much more prevalent than positive priors in this sample, ranging from 32% to 81% compared to 6% to 32% respectively, i.e., respondents ex-ante are more likely to have negative beliefs about values of the actions of the US than is warranted by the facts. These systematically erroneous beliefs about actions of the US are consistent with the local media practices of slanted news coverage and prominence to selective (negative) actions of the US (Reetz, 2006; Fair, 2010). Neutral priors range between 14 and 51%.

For the purpose of investigating how updating varies by information prior, we need to aggregate the respondents' prior for each treatment. We define a respondent as having, for a given treatment, an "Overall Positive Prior" ("Overall Negative Prior") if the respondent had a positive (negative) prior for at least one piece of information, and a positive (negative) or neutral prior for the remaining pieces of information. A respondent is categorized as having an "Overall Neutral Prior" if he had neutral priors for *all* the pieces of information. Finally, we categorize respondents as having "Mixed Priors" if they cannot be classified as having overall positive, overall negative, or neutral priors. This, for example, would be the case when the respondent has a positive prior about one piece of information, and negative priors about the other pieces of information in the treatment.

The first row in Panel A of Table 8 shows the distribution of information priors in our sample, pooled across the treatments. About 11% of the respondents have overall positive priors, 54% have overall negative priors, 7.5% have neutral priors, and the remaining 28% have mixed priors. There is, however, substantial heterogeneity in information priors across groups. Information priors are generally more negative as the institutions become more conservative. For example, about 46% of Selective Liberal University students have negative priors, compared to 59% of Islamic University students. It is interesting to note that students in the more conservative institutions are more likely to have negatively-biased beliefs about actions of the US than a random sample of the cities' populations. One possible explanation for these cross-group patterns

[17] Respondents who respond "No" to "*Before we gave you this information, did you know that the U.S. Drones are loaded with the consent of the Pakistani government, and that Pakistani Intelligence officials provide targeting information to the United States?*" in T2 are defined as having a "negative" prior toward the US, while those who report "yes" are defined as having a neutral prior.

is the differential exposure of these groups to different news sources (as shown in Table 1). The low p-values of the F-tests for the equality of proportions across the groups indicate that the differences in the distribution of priors across the groups is statistically significant.

The last three rows in Panel A of Table 8 show that the distribution of overall negative, positive or neutral priors is different across positive and negative treatments: for example, respondents are more likely to have overall negative (positive) priors for negative (positive) treatments. Priors may vary systematically across the positive and negative treatments since they contain different facts.

5.2 Mechanisms

In an unbiased revision framework, attitudes' revision depends on priors about the information: we should see upward revisions for individuals with negative priors for events that enter with a positive weight in the attitude function (i.e., the weight $\alpha > 0$), downward revisions for individuals with positive priors (for events with a positive weight in the attitude function), and no revisions for people who already knew the information we provided them.

5.2.1 Treatment-level Heterogeneity

Panel B of Table 8 shows the baseline and revised attitudes toward the US, as well as the revision by information prior. The last row shows a slight downward average revision for those with overall positive priors (though it is not economically or statistically meaningful), upward average revision for those with overall negative priors (significantly different from zero at 1%), and upward average revision for those with neutral priors (of a magnitude similar to those for negative priors, and statistically significant at 10%).

This suggests that average revisions for respondents with positive and negative priors are directionally consistent with unbiased updating. On the other hand, the updating of neutral-prior respondents cannot be explained by information-based updating. Another point to note is that the median revision for all prior types is zero: indeed, 51% of the respondents do not revise their attitude following the information treatment.

Table 9 presents further details about the underlying variation, and shows the proportion of respondents who revised upward, downward, or not at all, by prior type. Non-revisions can either be constrained – for example, if the respondent's baseline attitude is 0 (10) and she has an overall positive (negative) prior – or unconstrained; the table shows both separately. Panel A of the table reveals striking heterogeneity in updating. Among those with overall positive priors, downward revision is marginally more prevalent than upward revisions. Among those with overall negative priors, upward revision is more prevalent than downward revision (26.6% versus 21.8%). Among those with neutral priors, non-revision is much more prevalent (61% versus about 50% for the

counterparts). These patterns suggest that unbiased belief updating cannot be the only source of revision.[18] Table 9 also shows that some respondents have non-malleable attitudes. A lower bound for the proportion of those with non-malleable attitudes is given by the proportion of those who had negative or positive priors, were unconstrained and did not revise their attitude: [0.112 x 21.2%] + [0.536 x 50.1%] = 29.2%. The upper-bound is given by the overall proportion of respondents who did not revise (i.e., 51%).

Panel B of Table 9 shows the updating distribution for positive and negative treatments. We see that the updating patterns, conditional on prior type, differ by the nature of the treatment, which is not what would be predicted under unbiased updating). The table shows that the proportion of positive-prior respondents who revise downward is much higher in negative treatments. The converse is the case for negative-prior respondents, who are much more likely to revise upward when the treatment is positive (versus when negative). These patterns are consistent with saliency bias and respondents being responsive to the inherent nature of the information they receive, irrespective of their prior.

5.2.2 Individual-level Heterogeneity

We next turn to regression analysis in order to investigate individual-level heterogeneity in updating.

Given the fact that only about half of the respondents revise their attitudes, we first investigate the propensity to revise one's attitude. The first column of Table 10 regresses a dummy for revision in attitudes onto priors (the excluded prior is overall neutral prior) and treatment type. We see that individuals with non-neutral priors are all more likely to revise their attitudes– this is sensible since we expect the treatment to be more informative for those respondents who are ex-ante unaware of the presented information. We also see that respondents who receive positive treatments are more likely to revise. Column (2) of the table interacts the prior types with treatment type, and includes a large set of controls. There are now no longer any systematic differences in updating by prior or treatment type. We also see that, conditional on prior and treatment types, respondents with more favorable US attitudes at the baseline, those enrolled in less conservative institutions, those more proficient in English, and those with higher exposure to English media and greater awareness of foreign affairs – all endogenous variables – are more likely to revise their US attitudes as a result of the intervention.

Columns (3) and (4) of Table 10 investigate determinants of positive revisions in the sample. Information-based updating would imply that the propensity to revise upward should not depend on the treatment type, and should be higher (lower) for respondents with negative (positive)

[18] Recall that we assume here that the weight attributed to various actions in the attitude function is homogenous and is of the same sign as described by the average treatment effect. However, these patterns could also be consistent with heterogeneity in the weight.

priors. Column (3) shows little evidence consistent with this. One, respondents who receive the positive treatment are substantially more likely to revise upwards (an average increase of 16 percentage points on a base of 26 percent). Since the specification controls for prior types, this can only be consistent with saliency-based updating. Second, none of the coefficients on the prior types are significant; that is, the propensity to revise upwards does not seem to depend on respondents' priors. Column (4) includes prior type and treatment type interactions, and a large set of controls. Again, the patterns are inconsistent with information-based updating. We also see that, controlling for priors, respondents enrolled in the Selective Liberal University, those proficient in English, and those knowledgeable about foreign affairs are all more likely to revise upwards. These patterns are indicative of endogenous positive selection into the decision to revise upwards.

A natural question to ask is whether the information about the US also impacts attitudes towards Americans and the United Kingdom. We conduct the same regressions as in columns (1) and (3) of Table 10, except that the attitude now pertains to Americans or the UK. This is analyzed in Table 11. The first two columns show that there is no systematic relationship between revisions for Americans and the treatment type or priors. This is not due to respondents not revising their attitudes towards Americans: in fact, 55% of respondents revise their attitudes towards Americans, and 30% revise attitudes upwards. This suggests that respondents make a distinction between the US and Americans, and associate the foreign policy statistics that we provide in the information interventions with the US establishment but not the American public. Consistent with this interpretation, column (3) shows that respondents with non-neutral priors are also significantly more likely to revise their attitudes towards the UK (though, the last column shows that positive revisions towards the UK are not systematically associated with priors or treatment type). This would suggest that respondents construe actions by the US as representative of those of the Western countries more broadly.

Overall, we find little evidence that revisions of attitudes towards the US are consistent with unbiased information-based updating. At the individual level, the propensity to revise attitudes towards the US (and to revise them upwards) is driven primarily by endogenous characteristics and largely unexplained by the content of the provided information. Instead the inherent nature of the information seems to matter, suggestive of salience-based updating as the main driver of revisions.

6 Robustness Checks

To test the robustness of specific features of the study design, we analyze whether: (1) our results are robust to excluding people who are less likely to have a prior about the presented

information; (2) our method of eliciting information priors after the provision of information yields biased responses; (3) the experimenter demand effect is driving updating in the within-subject design; (4) credibility of information and tendency to revise attitudes are related; and (5) the impact of information is persistent.

Points (2) to (5) are evaluated using a follow-up study conducted in April 2013 at the Liberal University. The follow-up study was conducted in 21 classes randomly provided by the registrar's office. Classes were randomly assigned to one of three groups:

- Control group: students were first asked about their attitudes towards various countries including the US, those countries' people, and various Pakistani institutions. Demographic information and information priors about two specific pieces of information were then collected from respondents. These students constitute the "control" (C) group as they do not receive any information treatment.

- Within-subject Treatment group: students were first asked about their "baseline" attitudes, followed by basic demographic information. They were then provided with two pieces of information about past actions of the US regarding drone attacks in Pakistan; the information was inherently of a nature that cast the US in a negative light to Pakistanis.[19] Attitudes towards the US and the other entities were re-elicited, followed by elicitation of respondents' priors about the two pieces of information. Up to this point, this design closely follows the study design in the main study. We concluded by asking respondents about the credibility of each piece of information on a 0-10 scale (with 10 being fully credible). We refer to this group as the "within-subject treatment" (WT) group.

- Treatment group: basic demographic information was collected from students first. They were then provided with the same pieces of information as for the WT group. This was then followed by elicitation of respondents' attitudes towards the US and other entities, their information priors, and perceived credibility of the information. The "treatment" (T) group design is very similar to that of the WT group, except that baseline attitudes are never elicited from the respondents.

The assignment of students to the groups (C; WT; T) was randomized at the classroom level. We were also interested in the medium-term impacts of information, and re-surveyed classes about a month after the first survey. This second survey simply elicited students' attitudes towards the US and other entities.

[19] Specifically that: (1) The number of US drone attacks in Pakistan in 2011 was about 2 times (double) the number of US drone attacks in Pakistan in 2008 (Source: New America Foundation). (2) During June 2004-September 2012, as many as 34% of the casualties from U.S. drone attacks in Pakistan were civilians (Source: The Bureau of Investigative Journalism, London; Dawn, 2 July, 2012).

Appendix Table A4 shows that the characteristics of students across the three groups are generally balanced. Two exceptions are gender and age, which seem to differ across these groups. This is primarily a consequence of the randomization being done at the classroom level, and hence the gender or age composition being impacted by either the area of study or level of advancement of the course. Note that we did not find that those characteristics influenced the revision process. While the Control and Treatment groups have similar sizes, we assigned a larger sample to the Within-subject group since most of the robustness checks pertain specifically to within-subject updating.

6.1 Lack of a well-formed prior

Our design does not allow respondents to express the lack of a prior (except for in T4 and for one item in T2), and forces everyone to report a prior. One may worry that this feature of the design biases the analysis towards finding no impact of priors on the revision of attitudes, and so might lead to overstating the importance of salience as a revision mechanism. To address this concern, we present two checks.

For the first, we focus on respondents who are more likely to have well-formulated priors. As a proxy for having a prior, we (1) use an indicator for high knowledge about foreign affairs (measured as scoring at or above the median in a battery of questions in the survey about foreign affairs), (2) focus on the students at the more selective schools (the Selective Liberal University or Liberal University), and (3) focus on students who report watching CNN or BBC. The idea being that each of these subsamples are arguably more likely to be informed and hence have well-formed priors. Table 12 replicates the last two columns of Table 10, with interactions between these proxies for having a prior and indicators for priors/positive treatment. The first two columns, where the "Knowledge Proxy" is an indicator for scoring at or above median on the foreign affairs questions, show that the interaction terms are not statistically different from zero. That is, it is not the case that the impact of priors on updating is any different for this subset of respondents. It is also worth noting that the estimates of the uninteracted terms continue to be similar to the corresponding estimates in Table 10. Columns (3)-(6) of Table 12 show similar results when using the two other proxies for having a prior.

In our second check, we restrict the analysis to the treatments with news items that are more likely to be covered by the local media, and for which our respondents arguably are more likely to have well-formed priors. Given that drone attacks and US financial aid assistance to Pakistan are widely covered by the media, for this check, we restrict the analysis to the first three treatments (that is, we exclude T4 about US humanitarian assistance). The last two columns of Table 10 replicate the specifications in columns (3) and (4) of the table, respectively, restricting to the first three treatments. We see that the results are largely unchanged.

While the possibility of some respondents not having well-formulated priors cannot be entirely

ruled out, this analysis suggests that it cannot be a major concern in our interpretation of the results.

6.2 Priors' elicitation

In the main study design, information priors were elicited *after* respondents had seen the objective information. One concern could be that this may yield biased information priors. We investigate this directly in the follow-up study: a comparison of the distribution of information priors of the C group (which was not provided with information) with the combined treatment groups (T and WT combined) would allow us to investigate if our prior elicitation method is robust.

Table 13 shows the distribution of information priors for the control and pooled treatment groups. Students were asked two questions.[20] We see that the distribution of priors for both questions is remarkably similar for the two groups. For example, it is not the case that more students in the treatment group report ex-ante knowing the information (that is, having neutral priors). The distribution of overall priors for the two groups is also similar: for example, 13.7% of treatment respondents have overall neutral priors versus 12.0% of control respondents (difference not statistically significant). Likewise, Table A5 shows that, conditional on observables, the tendency to report a neutral prior does differ by whether one is assigned the treatment or not.

We take this as evidence of our method of prior elicitation being robust.

6.3 Credibility of information

One potential explanation for the fact that half of the respondents do not respond to the information treatment in our main analysis is that they simply do not trust the information we provided. Our initial study did not collect information regarding students' perceived credibility of the revealed information. In the follow-up study, we investigate this possibility by asking respondents how believable the information is. The question was worded as follows: " *We would now like to ask you how believable you find each of the following pieces of information, on a scale of 0 to 10, where 0 means "I do not believe this information at all", and 10 means "I fully believe this information".* " Table 14 shows high credibility rating for both pieces of information, with a median of 7 and a mean of 6.8-6.9. Moreover, the distribution of credibility rating is similar for respondents who revise and those who do not revise their attitudes, and notably also

[20] The two questions were asked as follows:

1. *What was your best guess of how the number of US drone attacks in Pakistan during 2011 compared to the number of US drone attacks in Pakistan during 2008?* (mark one)

less than 2 times the number of US drone attacks during 2008; about 2 times...; more than 2 times...; I did not think the US had conducted any drone attacks in Pakistan since 2008.

2. *Before we gave you this information, what was your best guess of the proportion of casualties from U.S. drone attacks in Pakistan that were civilians during 2004-2012?* (mark one)

less than 34%; about 34%; more than 34%; I did not think that there had been any civilian casualties from U.S. drone attacks in Pakistan during 2004-2012.

across the distribution of prior types. This suggests that non-revision in attitudes cannot be solely the result of respondents not finding the information credible, but rather a result of such respondents' attitudes being non-malleable.

6.4 Within-subject versus between-subject design

One potential concern is that the revision of attitude in our within-subject design is driven by an experimenter-demand effect. There is little reason to believe that this would be a factor since the surveys are anonymous and paper-based. The findings that (1) half of the respondents do not revise their attitude, and (2) the treatment effect is not US-specific (as seen in Treatment 5), also suggest that this cannot be a dominant factor. However, we obviously cannot rule this factor out.

The follow-up study allows us to investigate this. A between-subject treatment effect can be obtained from a comparison of the attitudes of the T and C groups. We can then compare it with the within-subject treatment effect (from the WT group) to investigate if the experimenter demand effect is an issue in our context. Given the negative nature of the information, we expect the average effects to be negative.

Table 15 presents the mean attitudes for the various groups. In the between-subject design, the information treatment significantly reduces the attitude toward the US: the difference in the mean attitude between the control and treatment group is -1.5. Here, we cluster the standard errors at the level of randomization (class) using the Wild Cluster Bootstrap. Similarly, in the within-subject design, the information treatment reduces the average attitude toward the US, but by 0.6 points only. The difference in average revisions across the two designs is statistically significantly different from each other (p-value = 0.014), suggesting that the design does matter. But the revision in the within-subject design is *smaller* in magnitude than the revision in the between-subject design, suggesting that anchoring toward baseline attitudes in the within-subject design (and not an experimenter demand effect, which would have led to larger revisions in the within-subject design) is a dominant factor. This suggests that our main results do not over-estimate how responsive attitudes are to information. Rather, they represent a lower-bound and we may expect greater revision of attitudes outside of the experimental set-up. Note that we favor the within-subject design since analyzing individual-level revisions provides direct insight into the mechanisms underlying the revision process.

6.5 Medium-term effect of information treatment

We find sizable impacts of the intervention in our main study design as well as in the first survey of the follow-up study. A natural question is whether these impacts persist beyond the horizon of the survey. Experimental studies of media campaigns tend to find short-lived impacts on

attitudes (Iyengar and McGrady, 2005; Gerber et al., 2011).

The follow-up study consisted of two surveys, with the second survey being conducted about a month after the first. No identifying information was collected from students, and so we cannot link the surveys at the individual level. Instead, since assignment to the groups was randomized at the classroom level, we investigate the persistence of information at the classroom level by comparing medium-term attitudes of classes in the T and WT groups with those in the C group. We were unable to conduct the follow-up survey in one of the treatment classrooms since the course had been completed by mid-semester. Errors are clustered at the classroom level, using the Wild Cluster Bootstrap.

The first row in Table 16 shows the average (baseline) attitude for the control group from the first survey, and the average attitude in the second survey. We see that mean attitudes for the control group declined by 1.45 points over the course of a month. The second row shows the revised attitude for the pooled treatment group in the first survey. We see the average of 3.6 is substantially lower than the average baseline attitude of 4.3 for the control group. Notably, we see that the mean attitude for the treatment group in the second survey of 2.83 is remarkably similar to that of the control group. This sharp drop for both the control and treatment groups may initially seem surprising. However, the second survey was conducted in April 2013, less than three weeks prior to the national elections in Pakistan, close to which the anti-America rhetoric espoused by the mainstream parties increased substantially. We believe this is the factor behind the drop in attitudes between the two surveys. Our intervention seems to have been much softer than the changes in the political environment between the surveys. We are unable to conclude if the effects of the intervention would have persisted had the environment otherwise remained the same between the two surveys.

7 Conclusion

Using an innovative information experiment embedded in a survey, this paper presents direct evidence on the effects of new information on Pakistani youths' attitudes towards the US. We find that respondents are responsive to the information and, on average, revise their attitudes sensibly– attitudes about the US are revised upward (downward) when provided with positive (negative) information about the US. Data collected on respondents' priors about the provided information allow us to shed light on the mechanisms that lead to revisions. The distribution of information priors in our sample is skewed, with respondents being much more likely to have negative priors about actions of the US than having positive priors- a finding that is perhaps not surprising given the context. The main mechanism that leads to revisions in attitudes seems to be salience-based updating. Moreover, at least a third of our respondents have non-malleable attitudes. We do not find evidence of attitudes converging upon receipt of information,

underscoring the heterogenous underlying mechanisms at play.

What are the implications of our findings? First, our results indicate that public opinions are not purely a cultural phenomenon, and are in part shaped by (perceptions of) recent events. Second, attitudes are on average malleable in the face of new information. Third, the strong saliency effect suggests that news about the US may impact attitudes even when it contains no information content. In a setting with an anti-US media slant, that can be worrisome.

A limitation of our study is that our results are derived from a controlled environment. Attitude revision when presented with new information in a survey/experiment may be very different from instances where individuals acquire the information themselves (Hertwig et al., 2004), and where new information may not be as salient as it is in our setup. In addition, given that our sampling strategy focuses on primarily educated individuals, it is unclear how our results would extend to less-educated populations. However, since these individuals are more likely to rise to positions of policy decision-making and to dictate future policy, understanding the determinants of their attitudes is of particular relevance. Our study is also silent about the best way to disseminate objective facts about the US to the Pakistani public and the Muslim world more generally. Since domestic elites and media may have incentives to advance anti-American attitudes in settings with high competition (Gentzkow and Shapiro, 2010; Blaydes and Linzer, 2012), an important question then is how to make a counter-narrative –based on objective facts– available to respondents, especially when they do find such information useful. The controlled nature of our experiment also means that we ignore general equilibrium effects: increased dissemination of information by the US may also lead domestic media to respond in ways that may counteract such campaigns.

In addition, the medium-term effects of new information on respondents' attitudes remain unclear. While we conducted a medium-term survey in the follow-up study, the results remain inconclusive and warrant further research. A challenge with providing information to respondents and then re-surveying them after a few weeks is that the experimental information may be diluted by changes in the respondents' environment, as seems to have been the case in our follow-up study. An alternative to the approach used here is to instead generate an experimental panel by re-surveying respondents over regular intervals separated by, say, a few weeks. Changes in the geopolitical landscape in the Pakistan-US relationship would allow us to observe how attitudes change. Challenges with such an approach include understanding how individuals self-select their exposure to information, and measuring precisely the type of information individuals were exposed to and their priors about the information. Note also that these alternatives require longitudinal data, which to our knowledge remain unavailable. Until then, our study provides unique evidence to policy-makers, the research community and the general public on how attitudes toward the US can be shaped with the provision of objective facts about the Pakistan-US relationship.

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Appendix A

A1. Data Collection

Institution Surveys

The survey sessions were conducted in groups of 50-100 students in a classroom of the student's institution. The rooms were large enough to ensure respondent anonymity. An anonymous questionnaire was given to each participant, read out by the experimenters and projected on screen using a projector. The survey instrument was administered in Urdu at all institutions except the Selective Liberal University where it was conducted in English, since students there are more used to reading and writing in English.

The survey took about 90 minutes to complete, and consisted of four parts. The first section collected data on determinants of schooling choices (analyzed in Delavande and Zafar, 2014); the second consisted of experimental games, that included the trust and dictator game (see Delavande and Zafar, forthcoming); the third collected demographic details of the respondents; attitudes and opinions on various social and political issues were elicited in the fourth section of the survey. We use data collected in the last two sections of the survey in this paper. The survey instrument was anonymous and no identifying information was collected from the respondents. Students were compensated Rs. 200 (~USD 2.5) for completing the survey, and were additionally compensated for the experiments (average compensation for which was Rs. 600). The total average compensation of Rs. 800 (~USD 10) was substantial in the context of our setting.

City Sample Survey

The face-to-face City questionnaire was in Urdu. Consistent with Pakistani norms, respondents were surveyed by enumerators of the same gender. However, respondents who were literate were given the option of filling out the questionnaire by themselves. The survey instrument was similar to that used in the institutions, except that it did not include any experimental games (section 2 of the institution survey), and the schooling section (section 1) was modified.

The survey took about an hour to complete, and did not collect any identifying information. One may be concerned that the face-to-face mode may influence respondents' expectations about the enumerator's judgment, and that may induce them to give responses that are socially desirable (Marlowe and Crowne, 1968; Hoffman, McCabe, and Smith, 1994). However, given the widespread anti-Americanism in the Pakistani society (of which we also find evidence), we do not believe this introduces any significant bias in responses. Moreover, the empirical results that we describe later do not seem to support this concern. Respondents were compensated Rs. 400 (~USD 5) for completing the survey.

Follow-up Survey

The follow-up survey consisted of two anonymous surveys that were conducted a month apart at the Liberal University. The surveys were conducted in English at LU in students' classrooms, at the end of class. The first follow-up survey took less than 10 minutes to complete, and consisted of a section that collected basic demographic information and a section that elicited attitudes and opinions on various social and political issues. Respondents were compensated Rs. 100 (which, in 2013, corresponded to ~$1). The second survey was conducted about a month after the initial survey. It took about five minutes to complete, and elicited attitudes towards different countries. Since both surveys were anonymous, the panel analysis is conducted at the classroom level.

A2. Prior Elicitation

Treatment 1

1. Before we gave you this information, did you think that, in 2009, the financial assistance that the U.S. provided to Israel was more than, less than or about three times as much as the assistance the U.S. provided to Pakistan? (mark one)

    - more than three times as much
    - less than three times as much
    - about three times as much

2. Before we gave you this information, did you think that the military aid that Pakistan has received from the U.S. since 2001 was more than, less than or about half of Pakistan's costs in the "war on terror"? (mark one)

    - more than half
    - less than half
    - about half

Treatment 2

1. Before we gave you this information, did you think that the number of US drone attacks in 2009 was more than, less than or about 1.5 times the number of drone attacks in 2008?

    - more than 1.5 times the number of drone attacks in 2008
    - less than 1.5 times the number of drone attacks in 2008

- about 1.5 times the number of drone attacks in 2008

2. Before we gave you this information, did you think that, during 2006-2008, the proportion of casualties from U.S. drone attacks that were civilians was more than, less than or about 40%?

   - more than 40% of casualties were civilians
   - less than 40% of casualties were civilians
   - about 40% of casualties were civilians

3. Before we gave you this information, did you know that the U.S. Drones are loaded with the consent of the Pakistani government, and that Pakistani Intelligence officials provide targeting information to the United States?

   - Yes
   - No

Treatment 3

1. Before we gave you this information, did you think that, in 2007, the amount of funds the United States disbursed to Pakistan were more than, less than or about 21 times larger than the funds China disbursed to Pakistan?

   - more than 21 times larger
   - less than 21 times larger
   - about 21 times larger

2. Before we gave you this information, did you think that, in 2007, the amount of funds the United States disbursed to Pakistan were more than, less than or about 27 times the amount of funds Saudi Arabia disbursed to Pakistan?

   - more than 27 times larger
   - less than 27 times larger
   - about 27 times larger

3. Before we gave you this information, did you think that, in 2009, the financial assistance that the U.S. provided to Pakistan was more than, less than or about 7.5 times larger than the assistance the U.S. provided to India?

- more than 7.5 times larger
- less than 7.5 times larger
- about 7.5 times larger

4. Before we gave you this information, did you think that the U.S. had more than, less than or about tripled its financial aid to Pakistan for the next five years?

    - more than tripled
    - less than tripled
    - about tripled

Treatment 4

1. Before we gave you this information, did you think that US AID had trained healthcare workers to prevent more than, less than or about 900,000 children from contracting pneumonia in Pakistan in 2009?

    - more than 900,000 children
    - less than 900,000 children
    - about 900,000 children
    - I did not know that US AID had trained healthcare workers who in turn prevented children from contracting pneumonia in Pakistan in 2009.

2. Before we gave you this information, did you think that US AID had treated more than, less than or about 1.6 million children for diarrhea in Pakistan in 2009?

    - more than 1.6 million children
    - less than 1.6 million children
    - about 1.6 million children
    - I did not know that US AID had treated children for diarrhea in Pakistan in 2009.

3. Before we gave you this information, did you think that the U.S. provided more than, less than or about Rs 1200 million to low income families across Pakistan to offset the impact of poverty?

    - more than Rs. 1200 million

- less than Rs. 1200 million
- about Rs. 1200 million
- I did not know that the U.S. provided money to low income families across Pakistan.

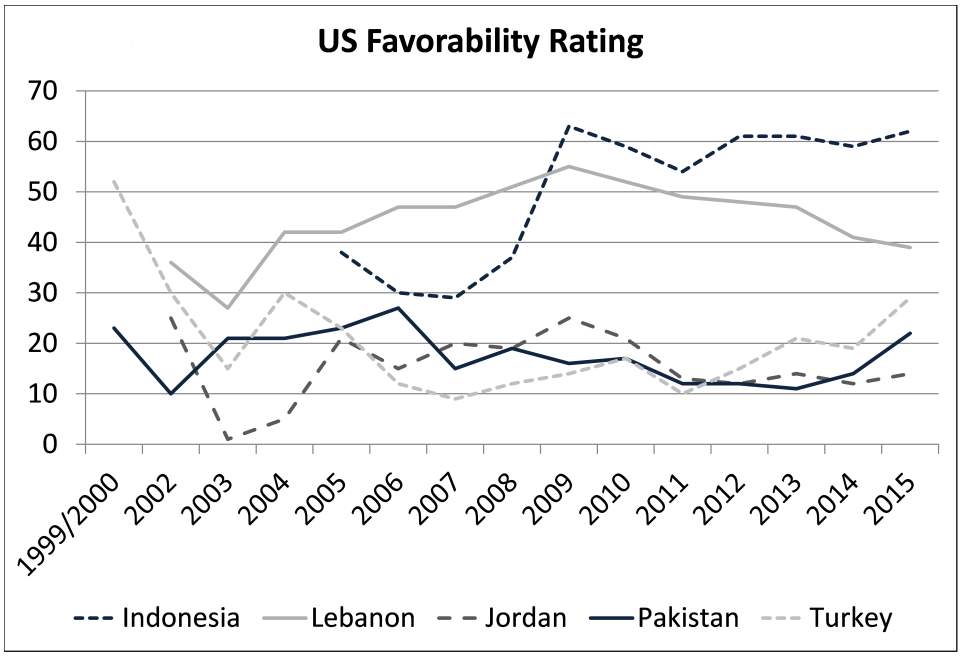

Figure 1: Evolution of US Favorability across selective Muslim Countries (Pew Global Attitudes Project, 2011).

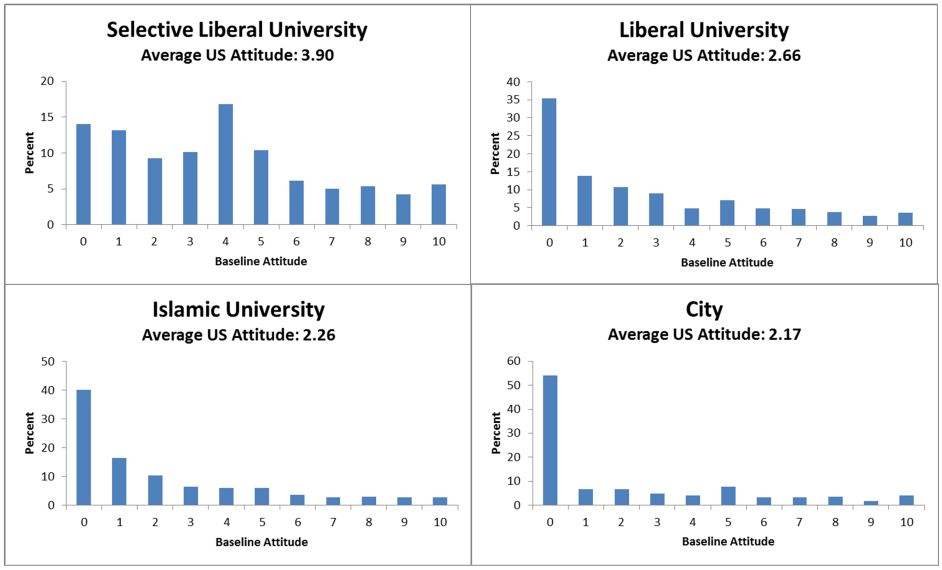

Figure 2: Distribution of Baseline Attitudes towards the US, by Group

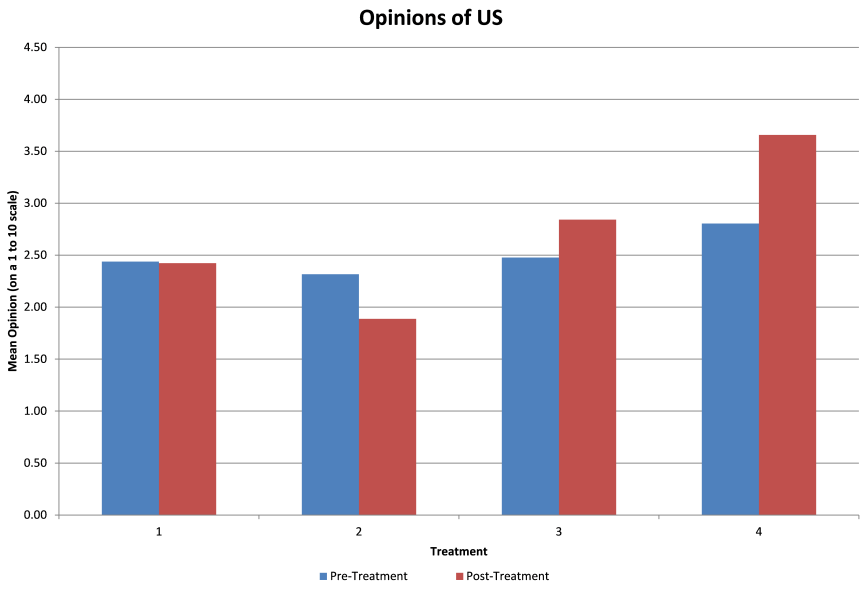

Figure 3: Mean attitudes, pre- and post- information treatment, are reported for the 5 information treatments. Sign-rank test for treatment effect are: 0.4889 for T1; 0.000 for T2; 0.000 for T3; 0.000 for T4. That is, the change of attitudes following treatments 2, 3, and 4 is different from zero at 1%.

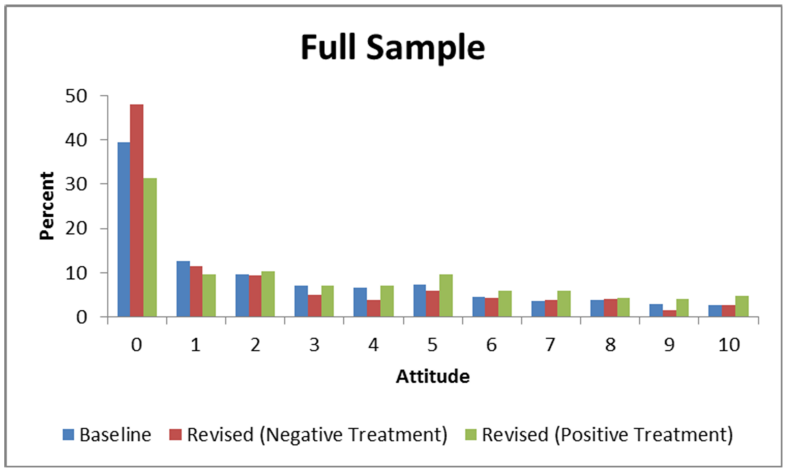

Figure 4: Distribution of basline and revised attitudes, by treatment type.

Table 1: Demographic Characteristics

	Selective Liberal Uni	Liberal Uni	Islamic Uni	City	Follow-up up[a]
	(1)	(2)	(3)	(4)	(5)
Number of Observations	357	594	711	724	649
Age	20.8	21.6***	21.8***	32.3***	21.4
	(3.8)	(2.3)	(2.3)	(12.5)	(7.9)
% Female	31.7	14.8***	38.8**	46.3***	13.5
Own years of education[b]	-	-	-	13.7	
				(4.5)	
Parents' monthly income (in 1000s Rs)	183	102***	52***	27***	91.6
	(223.0)	(158.0)	(88.0)	(27.0)	(108.4)
Father's years of education	14.4	10.7***	11.9***	9.2***	10.9
	(1.9)	(6.1)	(3.9)	(5.3)	(6.2)
Mother's years of education	12.9	11.1***	7.8***	5.6***	11.4
	(2.9)	(4.8)	(4.9)	(5.4)	(5.1)
Number of siblings (including self)	2.6	3.9***	4.4***	4.7***	
	(1.4)	(2.1)	(2.2)	(2.8)	
% Parents own:					
home	92	93	82***	66***	
television	89	84**	85**	72***	
cell phone	90	80***	82***	91	
computer	83	70***	65***	62***	
internet access	75	50***	44***	41***	
motorbike	47	62***	47	42*	
car	83	68***	47***	32***	
Religiosity (0-10)[c]	5.4	5.9***	6.3***	6.2***	6.6^{+++}
	(1.60)	(1.80)	(1.70)	(2.20)	(2.20)
Number of times pray each day (0-5)	1.9	2.5***	3.2***	3.4***	
	(1.50)	(1.50)	(1.50)	(1.60)	
% that fast during Ramadan	81	83	90***	78	
% watch/read English-language news	87	81**	83*	38***	
% watch/read conservative news	33	47***	51***	29	
% watch BBC or CNN	53	55	55	17***	
% know victim of violent attack[d]	15	20*	32***	14	
Impact of religious leader[e]	2.65	3.09***	2.55		
	(1.18)	(1.20)	(1.26)		
General Knowledge[f]	3.11	2.66***	2.88***		
	(1.49)	(1.30)	(1.35)		
Percent chance (0-100) of the US:[g]					
balanced approach to Palestinian conflict	27.2	19.4***	14.9***	10***	
closing Guantanamo Bay	31.2	24.6***	23.1***	14.4***	
pulling out of Iraq	38.4	25.8***	27.9***	21.3***	
pulling out of Afghanistan	36.7	26.9***	29.9***	22***	
pushing for solution to Kashmir conflict	28.2	16.7***	15.5***	9.7***	
stopping drone attacks	33.4	26.3***	26.4***	16.3***	
increasing presence in Pakistan	44.1	50.2***	55.6***	46.9	

Mean value reported for each of the continuous variables. Standard deviations in parentheses.
The table shows pairwise t-tests for each group's characteristics versus those of the Western-style University. Significant at * p<0.10, ** p<0.05, *** p <0.01.

[a] Follow-up survey conducted at Liberal University. +++, ++, + denote whether characteristics differ from those of the initial sample in column (2) at the 1, 5, and 10 % levels, respectively.

[b] Respondent's years of schooling. This is blank for the institution students since all of them are students in a Bachelor's program in their institution.

[c] Self-reported religiosity on a scale of zero (not religious at all) to 10 (very religious).

[d] Percent of respondents who have an acquaintance died or injured in the violence in recent years.

[e] Impact of religious leader on political opinions (on a 1-5 scale, where 5 is the highest impact).

[f] Number of general knowledge questions correctly answered (out of 6 questions).

[g] The average perceived likelihood on a 0-100 scale of the US taking the following actions over the next 5 years.

Table 2: The Information Treatments

Treatment 1	1. During 2009, the financial assistance that the US provided to Israel was three times as much as the assistance the US provided to Pakistan (Source: US Aid). 2. The military aid that Pakistan has received from the US since 2001 comes to half of Pakistan's costs in the "war on terror". (Source: New York Times, March 23, 2010).
Treatment 2	1. The number of US drone attacks in 2009 was about 1.5 times the number of drone attacks in 2008 (Source: New America Foundation). 2. During 2006-2008, about 40% of the casualties from US drone attacks in Pakistan were civilians (Source: New America Foundation). 3. The US drones are loaded at the Shamsi Airbase (200 miles southwest of Quetta) with the consent of the Pakistani government, and Pakistani Intelligence officials provide targeting information to the United States (Source: Los Angeles Times, February 12, 2009; London Times, February 18, 2009).
Treatment 3	1. In 2007, the amount of funds the United States disbursed to Pakistan were 21 times larger than the funds China disbursed to Pakistan, and as many as 27 times the amount of funds Saudi Arabia disbursed to Pakistan (Pakistan Development Assistance Database). 2. During 2009, the financial assistance that the US provided to Pakistan was 7.5 times larger than the assistance the US provided to India (Source: US Aid). 3. For the next five years, the US has tripled its financial aid to Pakistan (Source: Newsweek, October 21, 2009).
Treatment 4	1. The United States Agency for International Development (US AID) health programs trained healthcare workers and providers who, in turn, prevented over 900,000 children from contracting pneumonia in Pakistan in 2009 (Source: US AID). 2. The United States Agency for International Development (US AID) health programs treated 1.6 million children for diarrhea in Pakistan in 2009 (Source: US AID). 3. The US provides Rs. 2000 per family twice a month to almost 600,000 low income families across Pakistan (i.e., Rs 1200 million) in order to offset the impact of poverty (Daily Times, March 5, 2010).
Treatment 5	1. In 2007, the amount of funds Saudi Arabia disbursed to Pakistan were 4% as much as what the US disbursed to Pakistan (Pakistan Development Assistance Database). 2. In 2008, Chinese officials issued restrictions on Muslim religious practices, such as not allowing Muslim government employees to fast during Ramadan or to attend mosques in general. Restrictions also included the shaving of beards for men and the removal of veils for women. (Source: Human Rights Watch).

Table 3: Mean Attitudes at the Baseline, by Institution

	Number	US	Saudi Arabia	India	China	UK	Americans	Chinese People	Pakistani Gov	Pakistani Military	Pakistani Pol Parties
Full Sample	2386	2.58	7.88	2.02	6.91	4.54	3.83	6.57	3.23	7.69	2.87
		(2.99)	(2.49)	(2.48)	(2.31)	(2.64)	(2.70)	(2.30)	(2.96)	(2.80)	(2.75)
Selective Liberal Uni	357	3.90	6.39	2.59	7.06	5.4	4.51	6.5	4.02	6.47	3.58
		(2.94)	(2.67)	(2.71)	(2.35)	(2.64)	(2.68)	(2.41)	(2.90)	(3.35)	(2.98)
Liberal University	594	2.66	8.25	1.92	6.93	4.6	3.75	6.65	3.04	7.95	2.65
		(2.98)	(2.22)	(2.28)	(2.16)	(2.56)	(2.52)	(2.11)	(2.91)	(2.55)	(2.65)
Islamic University	711	2.26	7.91	2.13	6.63	4.27	3.8	6.37	3.68	7.91	3.18
		(2.81)	(2.43)	(2.45)	(2.10)	(2.38)	(2.36)	(2.06)	(2.83)	(2.62)	(2.64)
City	724	2.17	8.27	1.72	7.08	4.32	3.6	6.74	2.57	7.87	2.39
		(3.03)	(2.41)	(2.49)	(2.56)	(2.85)	(3.08)	(2.60)	(2.99)	(2.71)	(2.72)
p-value of F-test[a]		0	0	0	0	0	0	0	0	0	0
Observations		2386	2385	2384	2385	2382	2382	2383	2384	2386	2373

Mean reported in each cell. Standard deviations in parentheses.
[a] P-value of an F-test for equality of means across institutions.

Table 4: Variation in Baseline Attitudes by Demographic Characteristics

Characteristics		*Opinions about:* United States		Americans	
English Proficient[a]	Yes	2.91	(3.10)	4.13	(2.67)
	No	2.25***	(2.86)	3.54***	(2.70)
English News Consumer[b]	Yes	2.79	(2.99)	3.93	(2.56)
	No	2.10***	(2.94)	3.62***	(2.95)
Conserv. News Consumer[c]	Yes	2.40	(2.96)	3.64	(2.58)
	No	2.69**	(3.02)	3.97***	(2.77)
Age	Highest Quartile	2.09	(2.89)	3.69	(2.95)
	Lowest Quartile	2.88***	(3.02)	3.87	(2.60)
Female	Yes	2.63	(3.03)	3.55	(2.59)
	No	2.55	(2.98)	3.98***	(2.74)
Parent's Income	Highest Quartile	3.39	(3.06)	4.14	(2.64)
	Lowest Quartile	2.01***	(2.89)	3.51***	(2.79)
Father's Education	At Least High School	2.76	(3.04)	3.91	(2.60)
	Less Than High School	2.22***	(2.87)	3.69**	(2.87)
Mother's Education	At Least High School	3.05	(3.05)	4.01	(2.61)
	Less Than High School	2.20***	(2.89)	3.70***	(2.76)
Religiosity[d]	Highest Quartile	2.36	(3.02)	3.70	(2.74)
	Lowest Quartile	2.74***	(3.04)	3.91	(2.76)
Times Pray per Day	Highest Quartile	2.34	(2.92)	3.72	(2.70)
	Lowest Quartile	2.95***	(3.08)	4.01***	(2.68)
Know Victim of Violence[e]	Yes	2.49	(2.86)	3.89	(2.50)
	No	2.61	(3.03)	3.83	(2.75)
Influenced by relig. leader[f]	Influenced	2.24	(2.80)	4.00	(2.45)
	Not Influenced	2.74**	(2.97)	3.85	(2.41)
Foreign Affairs Knowledge[g]	Above Median	2.55	(2.97)	3.96	(2.73)
	Below Median	2.59	(3.01)	3.77	(2.68)

Mean attitudes reported. Standard deviations in parentheses.
Wilcoxon rank-sum test conducted for equality of means for the two groups for each demographic variable.
* p <0.10, ** p<0.05,*** p<0.01.
[a] English Proficiency is a binary variable if respondent reports to be proficient in English.
[b] English news consumer is "Yes" if respondent reads at least 1 English newspaper or listens to at least one English news channel.
[c] Conserv. new consumer is "Yes" if respondent reads or listens to at least one news source that can be categorized as right-wing.
[d] Religiosity is on a scale from 0 to 10 (10 being very religious).
[e] Equals 1 if respondent has an acquaintance who died or was injured in recent violent attacks in the country.
[f] Equals 1 if respondent rates religious leader as having the most impact on own political opinions.
[g] Number of foreign affairs questions answered correctly (out of a total of 6 questions).

Table 5: Behavior and Attitudes towards the US

	Prob of Migrating to US[a]			Donation to a charity:	
	2x salary	5x salary	10x salary	Secular[b]	Conservative
	(1)	(2)	(3)	(4)	(5)
Baseline US attitude	2.20***	2.49***	2.63***	0.70*	-0.56**
	(0.23)	(0.24)	(0.26)	(0.42)	(0.24)
Selective Liberal University	9.36***	15.39***	9.74***		
	(2.83)	(2.93)	(3.18)		
Liberal University	9.00***	16.57***	16.07***	21.95***	-0.72
	(2.42)	(2.51)	(2.72)	(3.68)	(2.06)
Islamic University	11.23***	18.01***	18.42***	27.47***	0.9
	(2.18)	(2.25)	(2.44)	(3.90)	(2.18)
Age	-0.32***	-0.37***	-0.49***	-0.36	0.23
	(0.10)	(0.10)	(0.11)	(0.45)	(0.25)
Female	-1.8	-1.61	-0.5	3.89	-3.71**
	(1.56)	(1.61)	(1.75)	(2.87)	(1.60)
Parent's Income	0.02	-0.02	0	0.14*	0
	(0.05)	(0.06)	(0.06)	(0.08)	(0.05)
Father's Education	0.14	0.16	0.26	0.67**	-0.12
	(0.16)	(0.16)	(0.18)	(0.28)	(0.16)
Mother's Education	-0.05	-0.02	0.12	-0.53*	0.17
	(0.16)	(0.16)	(0.18)	(0.28)	(0.16)
Religiosity	0.54	0.13	-0.2	-0.16	0.03
	(0.40)	(0.42)	(0.45)	(0.79)	(0.44)
Times Pray per Day	-2.31***	-2.13***	-1.70***	-1.66*	0.91*
	(0.50)	(0.51)	(0.56)	(0.89)	(0.50)
English Proficiency	2.33	3.53**	3.53**	1.74	-2.05
	(1.42)	(1.47)	(1.60)	(2.52)	(1.41)
Know Victim of Violence	-1.12	-0.98	1.2	-3.44	2.05
	(1.66)	(1.72)	(1.87)	(2.86)	(1.60)
English News Consumer	0.98	3.24*	4.35**	-0.76	-2.13
	(1.72)	(1.78)	(1.93)	(3.30)	(1.84)
Conserv. News Consumer	0.19	-1.61	-1.32	-0.34	3.62***
	(1.40)	(1.45)	(1.58)	(2.47)	(1.38)
Influenced by religious scholar	-1.62	0.6	3.33	-4.3	4.60*
	(3.06)	(3.17)	(3.44)	(4.63)	(2.59)
Foreign Affairs Knowledge	-1.74	0.28	-0.09	-4.26	0.92
	(1.46)	(1.51)	(1.64)	(2.68)	(1.50)
Constant	34.26***	43.31***	54.53***	33.42***	3.54
	(4.52)	(4.69)	(5.08)	(12.10)	(6.76)
Mean of Dep. Var	38	51	62	44.3	8.2
R-squared	0.12	0.18	0.18	0.05	0.026
Number of Observations	2375	2376	2375	1662	1662

Table reports OLS regression of dependent variable onto various correlates.
Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.
[a] The probability respondent assigns to migrating to the US if their earnings at age 30 in the US would be 2, 5, or 10 times as high as their expected earnings at age 30 otherwise.
[b] A dummy for whether respondent donates Rs. 50 to a secular charity.
Secular charities include the Afghanistan Women Council, Edhi Foundation, Pakistan Red Crescent, and United Nations Children's Fund (UNICEF). Conservative charities include Jamaal-ud-Dawa (Falah-e-Insaniat) and Anjuman Faiz-e-Islam.

Table 6: Revisions in attitudes towards the US, by treatment and institution

	T1	T2	T3	T4	p-value[c]
	(1)	(2)	(3)	(4)	(5)
Observations	462	454	482	455	-
Baseline Attitude	2.44	2.32	2.48	2.8	0.074
	[1]	[1]	[1]	[2]	
	(2.89)	(2.77)	(2.94)	(3.07)	
Revised Attitude	2.42	1.89	2.84	3.66	0.000
	[1]	[0]	[2]	[3]	
	(2.99)	(2.76)	(3.05)	(3.26)	
Revision[a]	-0.02	-0.43***	0.37***	0.85***	0.000
	[0]	[0]	[0]	[0]	
	(2.32)	(2.50)	(2.53)	(2.58)	
Effect size[b]	0.52	14.70	12.50	29.19	-

Table shows the mean [median] (standard deviation) of attitudes about the US, by treatment.
[a] Revision is revised minus baseline attitude. Ttests conducted for the significance of the mean revisions. Significance denoted by asterisks. * p<0.10, ** p<0.05, *** p<0.01
[b] Average revision, as a percent of the sample standard deviation in baseline attitudes.
[c] p-value of the joint equality of attitudes/revisions across treatments.

Table 7: Distribution of Information Priors

		Prior:		
	Observations	Positive	Negative	Neutral
	(1)	(2)	(3)	(4)
T1: US financial aid (neg)				
Treatment 1 Q1	455	0.21	0.63	0.17
Treatment 1 Q2	457	0.23	0.44	0.33
T2: Drone attacks (neg)				
Treatment 2 Q1	449	0.23	0.60	0.17
Treatment 2 Q2	450	0.26	0.44	0.30
Treatment 2 Q3	452	-	0.49	0.51
T3: US financial aid (pos)				
Treatment 3 Q1	474	0.24	0.41	0.35
Treatment 3 Q2	477	0.30	0.42	0.28
Treatment 3 Q3	475	0.32	0.37	0.31
Treatment 3 Q4	475	0.27	0.32	0.42
T4: US social and health (pos)				
Treatment 4 Q1	451	0.09	0.71	0.20
Treatment 4 Q2	453	0.06	0.78	0.17
Treatment 4 Q3	453	0.06	0.81	0.14

Table reports the proportion of prior types for each piece of information, by treatment.

Table 8: Distribution of Prior Beliefs about Information, by Institution and by Treatment

	Overall Positive Prior[a]	Overall Neg. Prior[b]	Overall Neutral Prior[c]	Other[d]
Panel A				
All	11.23	53.64	7.45	27.68
By Institution:				
Sel. Liberal University	13.38	45.72	3.72	37.17
Liberal University	10.85	55.10	6.72	27.33
Islamic University	11.03	59.07	7.83	22.06
City Sample	10.70	50.80	9.45	29.06
F-test[e]	0.682	0.001	0.027	0.000
By Treatment type:				
Positive Treatment[f]	13.02	51.76	9.5	25.72
Negative Treatment	9.39	55.57	5.35	29.69
T-test[g]	0.013	0.101	0.001	0.056
Panel B				
Baseline US Attitude	2.59	2.39	2.46	2.73
	[1.5]	[1]	[1]	[2]
	(2.90)	(2.86)	(3.11)	(2.98)
Revised US Attitude	2.57	2.64	2.76	2.86
	[1.5]	[1]	[1]	[2]
	(2.87)	(3.09)	(3.19)	(3.13)
Revision[h]	-0.02	0.26***	0.30*	0.13
	[0]	[0]	[0]	[0]
	(2.81)	(2.48)	(2.06)	(2.60)

Panel A: each cell reports the percent of respondents (in the row group) with the column priors.
Panel B: reports the mean [median] (standard deviation) of attitudes towards the US.
[a] Dummy that equals 1 if respondent holds more positive beliefs about the US (than is warranted by the facts) for at least one item of news in the relevant information treatment and neutral/positive for the others.
[b] Dummy that equals 1 if respondent holds more negative beliefs about the US for at least one item of news in the relevant information treatment and neutral/negative for the others.
[c] Dummy that equals 1 if respondent reports that the information that is being provided to them in the information treatment was all already known.
[d] Dummy that equals 1 if respondent's priors are mixed, i.e., they cannot be coded as positive, negative, or neutral.
[e] p-value of a F-test for equality of proportions across institutions.
[f] Treatments 1 and 2 are negative, while treatments 3 and 4 are positive.
[g] p-value of a t-test for whether means are the same between positive and negative treatments.
[h] This row also conducts a t-test for whether mean change in attitude is different from 0. Sig. denoted by asterisks: *, **, *** denote significance at the 10, 5, and 1 % levels, respectively.

Table 9: Heterogeneity in Revision Process

	Overall Pos. prior	Overall Neg. prior	Overall Neutral prior	Mixed prior
Sample proportion	11.23%	53.64%	7.45%	27.68%
Panel A:				
All Treatments				
Downward Revision	26.40%	21.80%	15.90%	25.30%
Upward Revision	25.00%	26.60%	23.20%	26.30%
Non-Revision Cases	48.60%	51.60%	60.90%	25.30%
Constr. Non-Revision[a]	27.40%	1.50%	37.00%	27.90%
Unconst. Non-revision[b]	21.20%	50.10%	23.90%	20.50%
Panel B:				
Positive Treatments				
Downward Revision	18.90%	16.70%	11.20%	20.30%
Upward Revision	26.20%	37.50%	29.20%	31.50%
Constr. Non-Revision	29.50%	2.30%	32.60%	26.60%
Unconstr. Non-Revision	25.40%	43.50%	27.00%	21.60%
Negative Treatments				
Downward Revision	37.20%	26.70%	24.50%	29.80%
Upward Revision	23.30%	16.10%	12.20%	21.70%
Constr. Non-Revision	24.40%	0.80%	44.90%	29.00%
Unconstr. Non-Revision	15.10%	56.40%	18.40%	19.50%

Table reports the proportion of respondents who fall in each cell.
Each column in each panel sums to 100.
[a] Respondents who do not revise their attitudes and have a baseline attitude of 0 (10) and a positive (negative) prior, or a baseline attitude of 0 or 10 and a mixed or neutral prior.
[b] Respondents who do not revise their attitudes and are no constrained (per the definition in a).

Table 10: Correlates of Revisions

	Revision Dummy		Positive Revision Dummy			
			All		Excludes T4[a]	
	(1)	(2)	(3)	(4)	(5)	(6)
Baseline US attitude		0.03***		-0.03***		-0.02***
		(0.00)		(0.00)		(0.00)
Positive Treatment	0.05**	0.01	0.16***	0.19***	0.10***	0.17**
	(0.02)	(0.08)	(0.02)	(0.07)	(0.03)	(0.07)
Overall Positive Prior	0.13**	0.10	0.03	0.05	0.05	0.05
	(0.05)	(0.08)	(0.05)	(0.06)	(0.05)	(0.06)
Overall Negative Prior	0.10**	0.03	0.06	0.04	0.02	0.04
	(0.04)	(0.06)	(0.04)	(0.05)	(0.04)	(0.05)
Mixed Prior	0.13***	0.08	0.06	0.09*	0.06	0.09*
	(0.05)	(0.07)	(0.04)	(0.05)	(0.04)	(0.05)
Pos Prior x Pos Treat.		-0.04		-0.08		-0.04
		(0.10)		(0.09)		(0.10)
Neg Prior x Pos Treat.		0.08		0.02		0.05
		(0.09)		(0.07)		(0.08)
Mixed Prior x Pos Treat.		-0.02		-0.10		-0.10
		(0.09)		(0.08)		(0.08)
Selective Liberal Uni		0.35***		0.22***		0.24***
		(0.04)		(0.04)		(0.05)
Liberal University		0.08**		-0.01		- 0.03
		(0.04)		(0.03)		(0.04)
Islamic University		0.02		-0.03		-0.05
		(0.04)		(0.03)		(0.03)
Age		0		0		0
		(0.00)		(0.00)		(0.00)
Female		0		-0.01		-0.01
		(0.03)		(0.02)		(0.02)
Income		0		0		0
		(0.00)		(0.00)		(0.00)
Father's Education		-0.00*		0		0
		(0.00)		(0.00)		(0.00)
Mother's Education		0		0		0
		(0.00)		(0.00)		(0.00)
Religiosity		0		0		0
		(0.00)		(0.00)		(0.00)
Times Pray per Day		0		-0.01		0
		(0.01)		(0.01)		(0.01)
English Proficiency		0.04*		0.04**		0.03
		(0.02)		(0.02)		(0.02)
Know Victim of Violence		0.01		-0.01		-0.03
		(0.03)		(0.02)		(0.03)
English News Consumer		0.05*		0.03		0
		(0.03)		(0.02)		(0.03)
Conserv News Consumer		-0.03		-0.02		-0.01
		(0.02)		(0.02)		(0.02)
Foreign Affairs Knowledge		0.04*		0.04*		0.05**
		(0.02)		(0.02)		(0.02)
Influenced by relig scholar		-0.01		0.04		0.05
		(0.05)		(0.05)		(0.06)
Constant	0.36***	0.26***	0.13***	0.14*	0.15***	0.16**
	(0.04)	(0.09)	(0.04)	(0.08)	(0.04)	(0.08)
F-test[b]	0.32	0.068	0.4	0.12	0.117	0.365
F-test[c]		0.000		0.000		0.000
Mean of Dep. Var	0.49**	0.49***	0.26**	0.26***	0.22***	0.23***
R-squared	0.006	0.12	0.032	0.093	0.019	0.081
Number of Observations	1853	1853	1853	1853	1398	1398

Table reports OLS estimates of a regression of the dependent variable onto covariates.
Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.
[a] Restricts to T1, T2, and T3.
[b] Test of joint significance of non-constant and non-demographic terms.
[c] Test of joint significance of demographic terms.

Table 11: Imapct of Information on Attitudes towards Americans and the UK

	Attitude towards Americans		Attitude towards the UK	
	Revision Dummy	Positive Rev Dummy	Revision Dummy	Positive Rev Dummy
	(1)	(2)	(3)	(4)
Positive Treatment	-0.01	0.02	-0.02	0.02
	(0.02)	(0.02)	(0.02)	(0.02)
Overall Positive Prior	0.07	0.03	0.13**	0.07
	(0.05)	(0.05)	(0.05)	(0.05)
Overall Negative Prior	0.07	0.03	0.09**	0.02
	(0.05)	(0.04)	(0.05)	(0.04)
Mixed Prior	0.07	0.03	0.08*	0.03
	(0.05)	(0.04)	(0.05)	(0.04)
Constant	0.50***	0.26***	0.44***	0.20***
	(0.05)	(0.04)	(0.04)	(0.04)
F-test[a]	0.359	0.989	0.069	0.540
Mean of Dep. Var	0.55	0.30	0.52	0.24
R-squared	0.001	0.001	0.004	0.002
Number of Observations	1853	1853	1853	1853

Table reports OLS estimates of a regression of the dependent variable onto covariates. Std errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.
[a] Test of joint significance of non-constant terms.

Table 12: Knowhow and Revisions

Dependent Variable: Positive Revision Dummy						
	Knowledge Proxy:[a]					
	Foreign Affairs Know.		Selective Schools		Watches BBC/CNN	
	(1)	(2)	(3)	(4)	(5)	(6)
Positive Treatment	0.19***	0.20***	0.16***	0.22***	0.17***	0.15*
	(0.02)	(0.07)	(0.02)	(0.08)	(0.03)	(0.08)
Overall Positive Prior	0.01	0.03	0.01	0.04	0.09	0.07
	(0.05)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)
Overall Negative Prior	0.06	0.01	0.04	0.06	0.05	0.01
	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)
Mixed Prior	0.06	0.07	0.03	0.11*	0.06	0.10*
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)
Pos Prior x Pos Treat.		-0.07		-0.04		0.02
		(0.10)		(0.10)		(0.11)
Neg Prior x Pos Treat.		0.05		-0.03		0.08
		(0.08)		(0.08)		(0.08)
Mixed Prior x Pos Treat.		-0.06		0.06		-0.07
		(0.13)		(0.06)		(0.09)
"Knowledge Proxy"	0.17	-	0.11		-0.06	
	(0.12)		(0.12)		(0.07)	
Knowledge Proxy x Pos Prior	0.04	0.08	0.08	0	0.09	-0.03
	(0.15)	(0.09)	(0.15)	(0.15)	(0.11)	(0.09)
Knowledge Proxy x Neg Prior	-0.12	0.07**	-0.08	-0.07	0.09	0.05
	(0.13)	(0.04)	(0.13)	(0.12)	(0.08)	(0.04)
Knowledge Proxy x Mixed Prior	-0.10	-0.11	-0.01	-0.07	0.09	-0.02
	(0.08)	(0.08)	(0.13)	(0.13)	(0.09)	(0.05)
Knowledge Proxy x Pos Treat	-0.19	-0.02	-0.10	-0.12	0.11	0.09
	(0.14)	(0.10)	(0.15)	(0.16)	(0.10)	(0.10)
Knowledge Proxy x Pos Prior x Pos Treat	-0.03	-0.03	-0.18	-0.07	-0.34***	-0.23
	(0.18)	(0.16)	(0.17)	(0.20)	(0.13)	(0.15)
Knowledge Proxy x Mixed Prior x Pos Treat	0.10	-0.01	0.07	0.14	-0.17	-0.08
	(0.16)	(0.13)	(0.16)	(0.18)	(0.11)	(0.13)
Knowledge Proxy x Neg Prior x Pos Treat	0.17	-0.07	0.19	0.16	-0.07	-0.13
	(0.15)	(0.12)	(0.15)	(0.17)	(0.10)	(0.11)
Constant	0.10**	0.15*	0.12***	0.13	0.12**	0.14*
	(0.04)	(0.08)	(0.04)	(0.08)	(0.05)	(0.08)
Demographics Included?	N	Y	N	Y	N	Y
Mean of Dep. Var	0.26***	0.26***	0.26***	0.26***	0.26***	0.26***
R-squared	0.039	0.095	0.048	0.095	0.041	0.097
Number of Observations	1853	1853	1853	1853	1853	1853

Table reports OLS estimates of a regression of the dependent variable onto covariates. Columns (2) and (4) include demographic variables that are not shown.
Robust standard errors in parentheses. * p< 0.10, ** p<0.05, *** p<0.01.
[a] The "Knowledge Proxy" is defined as students who score above median in the battery of questions about foreign affairs (cols. 1 and 2); students at the Selective Liberal University and Liberal University (cols 3 and 4); students who watch BBC or CNN (cols 5 and 6).

Table 13: Robsutness- Elicitation of Priors

	Question 1			Question 2			Overall			
	Neg Prior	Pos Prior	Neut Prior	Neg Prior	Pos Prior	Neut Prior	Neg Prior	Pos Prior	Neut Prior	Mixed Prior
Treatment	60.2%	11.7%	28.1%	49.7%	11.9%	38.4%	66.0%	10.7%	13.7%	9.6%
Control	64.6%	11.8%	23.6%	50.7%	12.0%	37.3%	69.7%	11.3%	12.0%	7.04%
p-value[a]	0.346	0.973	0.290	0.831	0.992	0.821	0.404	0.851	0.594	0.345

Table shows the distribution of prior types for each question.
[a] p-value of a Chi-squared test between the treatment and control groups.

Table 14: Robustness- Credibility of Provided Information

	25 p.[a]	Median	75 p.	Mean	N
Info 1					
Full sample	5	7	10	6.89	466
Revision type:[b]					
Revised	5	7	9	6.86	156
Not Revised	5	7	9	6.58	80
Constrained Non-revision	5	7	9	6.70	89
F-test[c]				0.39	
Prior type:[d]					
Positive Prior	5	7	9	6.51	53
Negative Prior	5	7	10	6.91	281
Neutral Prior	5	8	10	7.06	130
F-test[e]				0.36	
Info 2					
Full sample	5	7	9	6.77	466
Revision type:					
Revised	5	8	9	6.98	156
Not Revised	5	7	9	6.75	80
Constrained Non-revision	5	7	9	6.49	89
F-test				0.64	
Prior type:					
Positive Prior	5	7	9	6.86	53
Negative Prior	5	8	9	6.87	281
Neutral Prior	5	7	10	6.53	130
F-test				0.27	

Table shows the perceived credibility of each information type, on a 0-10 scale, where 10 is very credible.
[a] The 25th percentile of the response to the credibility questions.
[b] Sample restricted to the within-treatment (WT) group.
[c] p-value of a F-test of the equality of means by revision type (revision and non-revision).
[d] Sample is restricted to the combined WT and T groups.
[e] p-value of a F-test of the equality of means by prior type.

Table 15: Within- and Between- subject Treatment Effects

	Observations	Attitudes		Mean	
		Baseline	Revised	Revision	p-value
Between-subjects control (C)	160	4.26	-		
		(3.76)			
Between-subjects treated (T)	121	-	2.75	-1.51	0.000[b]
			(3.23)	[3.61][a]	
Within-subject treatment (WT)	338	4.46	3.83	-0.63	0.003[c]
		(3.44)	(3.50)	[3.79]	
T-test for WT - (T-C)					0.014[d]

Mean (standard deviation) shown in the table.
[a] Standard deviation based on Wild cluster bootstrap (at classroom level) in square brackets.
[b] p-value of an unpaired t-test of whether the mean revision differs from zero for the between group. I.e., baseline of group C - revised of group T = 0
[c] p-value of a paired t-test of whether the mean revision differs from zero for the between group. I.e., baseline of WT - revised of WT = 0
[d] p-value of a test of whether the between and within subject mean revisions are statistically different.

Table 16: Medium-term Treatment Effect

Group	N	Initial Survey[a]	Sec. Survey[b]	Difference
Control	160	4.26	2.81	-1.45
		(3.78)	(1.07)	[3.80][c]
Treatment	394	3.56	2.83	-0.81
		(3.47)	(0.90)	[3.57]
p-values of:				
Initial(treatment) - Initial(control)		0.037		
Diff(treatment) - Diff(control)				0.06
Follow-up(treatment) - Follow-up(control)			0.82	

Mean (standard deviation) shown in the table.
[a] Baseline (revised) attitudes from the initial survey shown for the control (combined WT and T treatment) groups.
[b] Attitudes from the second survey of the follow-up.
[c] Standard deviation based on Wild cluster bootstrap (at classroom level) in square brackets.

Table A1: Demographics by Treatment Group

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	p-value[a]
Number of Observations	479	475	492	467	473	
% Female	36.3	37.5	35.4	29.8	31.1	0.047
	(48.1)	(48.5)	(47.9)	(45.8)	(46.3)	
Parents' monthly income (in 1000s Rs)	100.7	98.8	84.9	97.9	107.5	0.467
	(166.9)	(155.0)	(138.8)	(169.4)	(164.8)	
% WSU	14.8	14.9	14.6	15.4	15	0.998
	(35.6)	(35.7)	(35.4)	(36.2)	(35.8)	
% LU	24.4	24.2	23.6	26.6	25.8	0.823
	(43.0)	(42.9)	(42.5)	(44.2)	(43.8)	
% IU	28.2	32	31.7	29.8	27.3	0.407
	(45.0)	(46.7)	(46.6)	(45.8)	(44.6)	
% city	32.6	28.8	30.1	28.3	31.9	0.532
	(46.9)	(45.4)	(45.9)	(45.1)	(46.7)	
Father's years of education	11.2	11.2	11.3	11.4	10.9	0.644
	(4.9)	(5.3)	(5.1)	(4.7)	(5.2)	
Mother's years of education	8.6	8.8	9	9	8.5	0.507
	(5.5)	(5.6)	(5.5)	(5.3)	(5.6)	
Religiosity (0-10)	6.3	5.9	5.9	6.1	6	0.008
	(2.0)	(2.0)	(1.9)	(1.8)	(1.9)	
Attitude towards the US	2.5	2.4	2.5	2.9	2.6	0.166
	(3.0)	(2.9)	(3.0)	(3.1)	(2.9)	
Attitude towards the UK	4.5	4.4	4.5	4.5	4.7	0.678
	(2.6)	(2.6)	(2.6)	(2.6)	(2.8)	
Attitude towards Americans	3.8	3.7	3.8	3.9	4	0.322
	(2.8)	(2.5)	(2.8)	(2.7)	(2.6)	

Standard deviations in parentheses. * p<0.10, ** p<0.05, *** p<0.01.
[a] p-value of a F-test of equality of proportions/means across treatment groups.

Table A2: Correlates of Baseline US Attitudes

Dependent variable: Baseline attitude towards the US	(1)	(2)	(3)
Selective Liberal University	1.25***		0.783***
	(0.25)		(0.26)
Liberal University	0.236		0.076
	(0.22)		(0.22)
Islamic University	-0.01		-0.111
	(0.19)		(0.20)
Age	0.022**		0.022***
	(0.01)		(0.01)
Female	0.111		0.057
	(0.14)		(0.14)
Parent's Income	0.012**		0.013***
	(0.01)		(0.01)
Father's Education	0.01		0.011
	(0.01)		(0.01)
Mother's Education	0.019		0.017
	(0.01)		(0.01)
Religiosity	-0.044		-0.049
	(0.04)		(0.04)
Times Pray per Day	-0.143***		-0.119***
	(0.04)		(0.04)
English Proficient	0.693***		0.655***
	(0.13)		(0.12)
Know Victim of Violence	-0.042		0.019
	(0.15)		(0.15)
English News Consumer	0.378**		0.243
	(0.15)		(0.15)
Conserv. News Consumer	-0.222*		-0.259**
	(0.13)		(0.12)
Foreign Affairs Knowledge	-0.113**		-0.065
	(0.05)		(0.05)
Influenced by religious scholar	-0.478*		-0.448*
	(0.27)		(0.27)
US will have better approach to Israeli-Palestine		0.019***	0.016***
		(0.00)	(0.00)
US will close Guantanamo Bay		0.007**	0.005
		(0.00)	(0.00)
US will pull out of Iraq		0.002	0
		(0.00)	(0.00)
US will pull out of Afghanistan		-0.004	-0.003
		(0.00)	(0.00)
US will push for solution to Kashmir conflict		0.008**	0.007*
		(0.00)	(0.00)
SA will reduce financial aid to Pakistan		0.001	0.001
		(0.00)	(0.00)
US will stop drone attacks		0.005*	0.005*
		(0.00)	(0.00)
US will increase presence in Pakistan		-0.008***	-0.006***
		(0.00)	(0.00)
China will sign trade agreement with India		0.007***	0.005**
		(0.00)	(0.00)
China will reduce financial aid to Pakistan		0.002	0.002
		(0.00)	(0.00)
Constant	1.89***	1.93***	1.47***
	(0.42)	(0.15)	(0.43)
p-value[a]	-	0.000	0.000
Mean of Dep. Var	2.58***	2.58***	2.58***
R-squared	0.081	0.069	0.122
Number of Observations	2386	2386	2386

Table reports OLS regression of baseline opinion of the US on various correlates (defined in earlier tables).
Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.
[a] p-value of a F-test of the joint significance of the likelihood (about various US actions) variables.

Table A3: Robustness- Revision of Attitudes in a Placebo Treatment

	Attitude			
Country	Baseline	Revised	Revision	p-value[a]
	(1)	(2)	(3)	(4)
United States	2.63	2.79	0.156	0.116
	(2.89)	(3.05)	(2.13)	
China	7.07	5.26	-1.81	0.000
	(2.07)	(2.97)	(2.93)	
Saudi Arabia	7.99	7.54	-0.453	0.000
	(2.37)	(2.55)	(2.25)	

Mean (standard deviation) shown in the table. Sample size: 463.
[a] p-value of a t-test of whether the mean revision differs from zero.

Table A4: Demographic Characteristics of Follow-up Sample

		Follow-up Survey				
	Initial Survey	Full Sample	C Group	T Group	WT Group	p-value[a]
	(1)	(2)	(3)	(4)	(5)	(6)
Number of Observations	594	649	160	139	350	
Number of Classes	-	21	6	5	10	
Age	21.6	21.4	22.5	20.4	21.3	0.006
	(2.3)	(7.9)	(11.8)	(5.3)	(6.4)	
% Female	14.8	13.5	19.5	14.5	10.4	0.038
Parents' monthly income (1000s Rs)	102	91.6	99.6	74.6	94.7	0.127
	(158.0)	(108.4)	(109.5)	(85.3)	(115.4)	
Father's years of education	10.7	10.9	11.2	11.1	10.7	0.713
	(6.1)	(6.2)	(6.2)	(5.9)	(6.3)	
Mother's years of education	11.1	11.4	11	11.5	11.6	0.531
	(4.8)	(5.1)	(5.4)	(4.9)	(5.1)	
Religiosity (0-10)[b]	5.9	6.6^{+++}	6.8	6.5	6.6	0.430
	(1.8)	(2.2)	(2.1)	(2.1)	(2.2)	

Mean value reported for each of the continuous variables. Standard deviations in parentheses.
The table shows pairwise t-tests for column (2) versus column (1). Significant at + p<0.10, ++ p<0.05, ++ p <0.01.
[a] F-test of equality of means across C, T, and WT (columns 3-5).

Table A5: Correlates of Neutral Priors

Dependent variable: Neutral prior dummy				
	Question 1		Question 2	
	(1)	(2)	(3)	(4)
Treatment Dummy[a]	0.06	0.05	-0.01	-0.01
	(0.07)	(0.07)	(0.05)	(0.05)
Female		0.09**		0.10**
		(0.04)		(0.04)
Parent's Income		0		0
		0.00		0.00
Father's Education		0		0
		(0.01)		(0.01)
Mother's Education		0		0
		(0.01)		(0.01)
Religiosity		0		0.01
		(0.01)		(0.01)
Constant	0.41***	0.40***	0.48***	0.41***
	(0.06)	(0.08)	(0.04)	(0.10)
Mean of Dep. Var	0.46	0.46	0.48	0.48
R-squared	0.003	0.007	0.000	0.007
Observations	1292	1234	1286	1228

Table reports OLS regression of a neutral prior dummy onto various correlates.
Clustered std errors in parentheses. * p<0.10, ** p<0.05, *** p <0.01.
[a]1 if in treatment group, 0 if in control group.