

First Steps Towards Hearts and Minds? USAID's Countering Violent Extremism Policies in Africa

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The United States government has adopted new approaches to counter violent extremist organizations around the world. “Soft security” and development programs include focused educational training for groups vulnerable to terrorist recruitment, norm messaging through local radio programming, and job creation in rural communities. This article evaluates the effectiveness of one set of these multi-vectored, community-level programs through data from 200 respondents in two similar, neighboring towns in northern Mali, Africa. The data show that residents in Timbuktu who were exposed to the programming for up to five years displayed measurably altered civic behavior and listening patterns in comparison with their counterparts in the control town of Diré, which had no programming (controlling for potential covariates including age, ethnicity, and political and socioeconomic conditions). However, there was little measurable difference between the groups in terms of their cultural identities and attitudes towards the West. While this study is unable to definitively prove a causal connection between programming and behavioral outcomes, it nonetheless strongly suggests that the process of “winning hearts and minds” can be effective at certain levels but may require extended time and dedicated resources to generate higher-level results.

Keywords countering violent extremism, Mali, radio programming, terrorism, U.S. government

Introduction

Since the 9/11 terrorist attacks on the United States, decision makers in the U.S. government have stepped up their efforts to decrease the threats from violent extremist organizations (VEOs) such as Abu Sayyaf, al Qaeda, and its regional allies and affiliates (including al Qaeda in the Islamic Maghreb, al Qaeda in the Arabian Peninsula, and al Shabab), Hamas, and Lashkar-e-Taiba. Much of the funding for countering violent extremism has gone toward “kinetic” operations such as covert or battlefield operations, drone strikes, and the training of U.S.-allied military forces in host nations. Of the funds set aside for fighting the “war on terror” between fiscal

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year (FY) 2001 and FY 2012, only five percent has gone towards diplomacy and development programs of the State Department and United States Agency for International Development (USAID).¹

Planners may rely on military responses because they remain familiar and allow quickly measurable outcomes. Nevertheless, many are beginning to recognize that they cannot, as Chairman of the Joint Chiefs of Staff Admiral Mike Mullen publicly acknowledged, “kill our way to victory.”² For example, while drone strikes may reduce the risks to U.S. military personnel on the ground and remove VEO leaders from the battlefield, they simultaneously reinforce grievance narratives of such organizations and the “collateral damage” angers local populations and host governments alike.³ This was the case in Somalia in the mid-2000s and remains an issue in Yemen and Pakistan.⁴

Recently, the U.S. government has taken on a broader strategy based on a diplomacy, development, and defense platform that seeks to incorporate a soft-side approach in the fight against violent extremism.⁵ As one decision maker argued, “[t]he way to undermine violent extremism is to give potential recruits . . . a viable alternative for which to live, not die.”⁶ Strategies from the softer side include addressing alienation among marginalized groups, improving civil-military relations, and improving educational and vocational opportunities.⁷ Observers may recognize this countering violent extremism (CVE) approach as an offshoot of the “soft power” approach advocated by former Assistant Secretary of Defense Joe Nye, which promoted co-optation rather than coercion as a lever for changing behaviors.⁸

Whereas hard power relies on military strength and deterrence, soft power rests on credibility, trust, and shared norms. Recognizing the multiple factors that can radicalize individuals and either push or pull them to join violent extremist organizations,⁹ the soft approach to counter-terrorism seeks to decrease the likelihood of recruitment and dry up the labor pool for potential terrorists.¹⁰ It does so through, among other methods, job provision, vocational training, and information diffusion techniques. Employment growth may embed local residents into local networks and institutions and inoculate them against incentives from insurgent groups. Stronger civic engagement ties locals into legitimate local governments and encourages them to support efforts to keep out violent extremist groups. Similarly, radio programs on peace and tolerance can reduce intergroup tension and make violence less likely. USAID and the State Department began these new strategies in the early 2000s with a special focus on developing African nations with wide, ungoverned spaces and large Muslim populations.¹¹

U.S. planners show special interest in Africa because of its burgeoning youth population, persistent lack of educational, housing and vocational opportunities, long-simmering grievances among marginalized populations, and location on heavily trafficked routes.¹² Chad, Niger, Mauritania, Mali, Senegal, Nigeria, Morocco, Tunisia, and Algeria serve as the main locations for the ongoing “battle of ideas”¹³ between VEO recruiters on one side and local moderates, national governments, and United States partners on the other.¹⁴ The Pan Sahel Initiative (created in 2002) began as a security-focused initiative which became the more holistic, interagency approach known as the Trans-Sahara Counter-Terrorism Partnership (TSCTP, created in 2005). The Peace through Development (PDEV, started in 2008 and now operating as PDEV II) program has emerged from TSCTP and represents USAID’s largest contribution to the overall TSCTP programs. Alongside these programs, USAID has run a number of smaller-scale programs for countering violent extremism; USAID’s CVE programs in Mali, for example, are not within the PDEV framework.

In cooperation with host nation governments, local partners, and nongovernmental organizations (NGOs), USAID and the State Department have sought to improve governance, develop community resilience, and reduce the impact of VEO narratives on populations across Africa. TSCTP—the largest of the programs focused on the often ungoverned spaces of northern Africa—targets “youth empowerment, education, media, and good governance.”¹⁵ Mechanisms under TSCTP include micro-grants for schools and teacher training, funds for strengthening the capacity of local NGOs, youth development initiatives, and technical and content assistance for increasing information flow on issues of peace and tolerance. Funding for these programs remains small in comparison with investments in military solutions; the USAID budget for TSCTP in fiscal year 2005 was roughly \$5 million, increasing to \$9 million by FY 2009, with \$16 million projected in the FY 2012 request.¹⁶ Despite the prominence of the soft side approach in the new U.S. strategy—as evidenced by the U.S. military’s new Concept Plan 7500 (CONPLAN 7500) which explicitly pushes development and diplomacy upstream and military force downstream¹⁷—little is known about its actual effects on targeted populations. One recent overview of multiple studies found mixed effects from development-based CVE strategies in the field in Iraq and Afghanistan based primarily on job creation and economic approaches.¹⁸

This article seeks to measure the outcome of intensive U.S. government activities in West Africa through a quasi-experimental paired-comparison study of 200 respondents from two similar towns in the nation of Mali. While a military coup headed by Captain Amadou Sanogo overthrew Mali’s elected President Amadou Toumani Toure in late March 2012 (and pro-junta protestors attacked interim leader Dioncounda Traore in late May 2012), the country had been a stable if weak and developing democracy since the early 1990s. The military coup has resulted in a rudderless Malian army and the expulsion of central government forces (and hence any central government authority) from the north by various groups—both secular and religious—competing for power. Mali, with more than 15 million people, remains among the poorer nations of the world¹⁹ and one in which a Tuareg separatist movement in the north had long worried many observers who feared a potential alliance with al Qaeda in the Islamic Maghreb (AQIM).²⁰ The underlying causes of the Tuareg rebellion had less to do with connections to violent extremist ideologies or violent extremist organizations than persistent regional inequality and a spatial deficit in governance.²¹

The collapse of Qaddafi’s regime in Libya served as a catalyst for much of the recent destabilization in Mali; many Tuareg fighters left their positions in the Libyan military and returned, heavily armed, to Mali. These rebels formed the National Movement for the Liberation of Azawad (MNLA) in October 2011 and effectively took on government armed forces, causing more than 400,000 people to flee their homes. The MNLA, a relatively nationalist and secularist group which seeks an independent homeland for the Tuareg, is one of several distinct groups fighting for control over the relatively ungoverned north. The newly created Islamic militia Ansar Eddine²² initially allied with the MNLA to gain control of much of northern Mali, including the areas where this study was carried out. Further, al Qaeda of the Maghreb (AQIM) and its adherent, the Movement for Oneness and Jihad in Africa (*Mouvement pour l’Unité et le Djihad en Afrique de l’ouest*, often abbreviated as either MOJWA or MUJAO), have also captured territory both from the Malian army and from the MNLA. Despite an initial alliance against the Malian army,

the MNLA has since fought on and off against Ansar Eddine and MOJWA and has lost control of cities such as Kidal, Gao, and Timbuktu to these violent extremist organizations.²³ Ansar Eddine and MOJWA have been linked to a number of atrocities, including amputations and the destruction of shrines and religious buildings, in the north.

USAID has been carrying out a number of programs since 2005 in Mali focused on strengthening the economic and social resilience of local communities in the face of messages and inducements offered by violent extremist groups such as AQIM and MOJWA. Landlocked Mali presents a critical case study²⁴ for illuminating the impact of CVE programming given its poverty, illiteracy, ungoverned spaces where the state has little capacity, and long-term internal conflicts. Tuareg-led groups have sought independence for the north and has fought on and off against the central Malian government since 1960 (the end of French colonial rule). Mali's colonial legacy and series of coups have created weakened political institutions and it has suffered from food insecurity and aid dependence.²⁵ Further, the countering violent extremism programming in Mali has been experimental and less developed than in other nearby Sahel countries.²⁶ Should the data from this study show that U.S. programs altered behaviors and attitudes under such difficult conditions, it would indicate *a fortiori* that these tactics would have an impact in more hospitable and stable locales.

This article makes several contributions to the literature. First, "measuring and evaluating counter-terrorism policies" remains an understudied topic²⁷ and "[t]he majority of the literature in the field comprises commentary and critique and lacks an empirical research basis."²⁸ One estimate based on the review of more than 100 articles found that less than 10 percent used quantitative analysis to illuminate the outcomes of radicalization and de-radicalization programs.²⁹ Recognizing these broader gaps in the research field, this article seeks to provide a quantitative analysis of U.S. government programming in Africa using new data from the field along with multiple analytical techniques. The conclusions drawn by this article are based on a paired-comparison type quantitative field study undertaken in December 2010 using multiple approaches to analyze the data. While it is not possible to definitively prove a causal connection between USAID's programming and the observed behavioral outcomes, the quasi-experimental set-up of the analysis allows relatively robust conclusions.

Next, while many in the West are concerned about Internet use by VEO recruiters, most of the population in the Sahel lacks access to the Internet, and instead receives ideas via radio. Perhaps six percent of Africa's population has regular access to the Internet, and studies have shown that more than 85 percent of Malians have never used it.³⁰ Similarly, due to a lack of infrastructure, very few residents in Mali have regular access to electricity and thus television programming. But cell phone use is rising, and phones themselves serve as conduits for radio programming, as even the base-model cell phones offered in Mali have FM radio receivers.³¹ This study partially focuses on whether or not populations in Mali access existing CVE messages available to them through a more broadly available medium: local radio stations.

Finally, this study underscores that there is no "silver bullet" in reducing violent extremism. Given the large number of tools available in the fields of public diplomacy, democracy promotion, and development, studies have yet to identify a single tactic which can work in all countries and cultures. Instead, as this study

emphasizes, strategies must be tailored to specific local communities based on cultural, linguistic, historical, and contextual factors³² and may have only partial effects on the target audience.

This article first lays out the theories explaining what factors might drive behavioral and attitudinal changes, then explains the data used in the study and the methodologies used to analyze the data. Beginning with bivariate, Chi-squared tested analyses, the paper moves on to multivariate regression techniques and propensity score matching to better support causal claims about the connections between variables of interest. It discusses the results, sets out the next steps in the research agenda, and concludes with broader lessons about countering violent extremism programming.

Theory

This study has sought to understand if several years of U.S. government-funded programs altered cognition and behaviors of Malians through a quasi-experiment involving 200 respondents in the paired towns of Timbuktu and Diré. Past experiments have studied similar, paired villages to better understand the impact of policy interventions such as radio programming; in such field tests, one village or city receives the treatment (in this case, exposure to U.S. programs) while the other does not.³³ The Trans-Sahara Counter Terrorism Partnership (TSCTP) in Mali sought to increase civic participation, reduce inter-group tension and violence, and strengthen the resistance of vulnerable groups—such as young men—to recruitment by violent extremist organizations. Strategic communication, such as messages broadcast through radio programming, can “help foster positive social networks, provide opportunities for individuals to gain respect and recognition, [and] increase the circulation of moderate voices and perspectives.”³⁴

The core **outcomes** (dependent variables) of interest here are accessing peace and tolerance programs on local radio channels, participation in community-level decision making, perspectives on al Qaeda's use of violence in the name of Islam, and beliefs in whether or not the U.S. is fighting Islam (or terrorism). Policy planners hope that programs countering violent extremism will increase access to tolerance radio programming and civic participation, lead more residents to be critical of al Qaeda's use of violence, and motivate people to see the United States as combatting terrorism, not Islam. Successful outcomes would theoretically make young Malian men less vulnerable to recruitment by violent extremist organizations and more likely to remain embedded in positive, mainstream social and religious institutions. Hence should the TSCTP-based programs in Timbuktu prove effective, residents there should demonstrate these behaviors more than their counterparts in Diré (who were not receiving such messages or benefiting from extensive U.S. government programs). Research has shown that, beyond actual exposure to norm messaging and programming, a number of factors influence behaviors and attitudes: demographic factors, socioeconomic drivers, and intrinsic cultural attitudes.

The study controls for demographic factors such as **age, sex, and ethnicity**. Due to difficulties in pinning down the exact age of many Malians, enumerators grouped the respondents into age groups.³⁵ Scholars have long argued that sex strongly determines behavioral and cognitive outcomes, with some arguing that women and men display differences due to intrinsic biological factors and others arguing for the role of education and socialization.³⁶ Whatever the reasons, analyses in Mali have shown

broad differences between women and men in the areas of education, health care, governance, and economic growth,³⁷ and thus controlling for sex is critical. Another critical factor to take into account is age, as many attitudes develop through exposure, life experience, and education.³⁸

A third demographic variable of interest is ethnicity—in this project whether or not the respondents in this area of northern Mali were *Sonrai* (also transliterated as *Songhay*, who traditionally were farmers) or Tuareg (who worked as herders). Ethnicity can strongly condition expectations about state and local population assistance based on levels of support or marginalization. Mali's long-simmering Tuareg rebellion has been fueled by the belief among many Tuareg that the government has failed to follow through on past promises and deliver needed services to their communities. Indeed, USAID researchers noted more than a decade ago that “[d]ue to the harsh climate, the lack of natural resources, high transport costs, a high illiteracy rate, and the nomadic lifestyle of many of its inhabitants, the North, and particularly the Tuareg population, has not received an equitable portion of governmental resources.”³⁹

Socioeconomic and political conditions also impact norms and behaviors. The survey included questions about belief in political freedom, satisfaction with services in the community, contact with local political representatives, the imagined likelihood of a local council member listening to concerns, and the degree of efficacy that the respondent reported. These variables capture the perspectives of the respondents about their financial conditions and the political environments in which they live. Individuals less satisfied with the services that they receive from government officials or local government employees may be more likely to ignore moderating norm messages and instead seek out assistance from violent extremist groups. Similarly, marginalized Malians who see themselves as having less efficacy—that is, lacking the ability to alter their political environment—may not seek to support the existing government, ignoring it or, ultimately, seeking to undermine it.

This study also includes a number of potential **cultural drivers** of behavior and attitudes, including impressions of the northern rebellion, views of the United States, support for or opposition to the implementation of *sharia* (Islamic religious) law, and support for or opposition to the use of violence in the name of Islam. Those who hold negative views of the U.S., support the implementation of Islamic religious law in a democratic state, and support violence in the name of Islam may be less likely to seek out messages of tolerance and peace and similarly less likely to become civically engaged through peaceful channels. By including these characteristics as potential controls, the study disentangles potentially overlapping or highly correlated perspectives.

The core **treatment / control** variable (operationalized as a dummy) is whether or not residents were directly or indirectly exposed to five years of U.S. government programming which sought to encourage them to tune into radio programming on peace and tolerance, mobilize them to participate in community decision making, and view VEO behavior negatively. U.S. government programs for the Trans-Sahel Counter-Terrorism Partnership (TSCTP) in the town of Timbuktu were run by a variety of partners over the period 2005–2010.⁴⁰ Table 1 below details the varied impact of six types of U.S. government programming in Timbuktu and Diré. Thousands of Timbuktu's residents, exposed to a broad array of messages through educational, governance, and micro-finance programs, were encouraged to tune into the peace and harmony radio programs run by local stations in local languages, while those in Diré were not.

Table 1. Comparison of U.S. programming in Timbuktu and Diré

Program	Timbuktu presence	Diré presence	Details
Radio for Peace Building in Northern Mali	Yes (two radio stations)	No	Technical training, infrastructure assistance, program production
Road to Reading (PHARE)	Yes (10 <i>madrasas</i>)	No	Improve instruction of reading and writing in French
Pro-Mali Nord	Yes (10 trainees)	Partial (one trainee)	Promote market driven employment through small enterprises
Capacity building for local government	Yes (multiple sites across Timbuktu)	No	Improve efficiency, transparency, accountability of officials
Micro-finance “Trickle Up”	Yes (13 local agencies)	Partial (one NGO shortlisted)	Microenterprise development with a focus on women, disabled, and youth
Walaikum	Yes (nine communes, multiple workshops, four imams, and local radio station)	No	Conflict mitigation and peace building for 2000 people

Note: Data from communication with USAID Mali program coordinators (July–August 2012).

Over the period of this study, U.S. government programming under the TSCTP in Mali fell into six main programs: Radios for Peace Building in Northern Mali, the Road to Reading/PHARE program, Pro-Mali Nord, capacity building for local governments, micro-finance “Trickle Up” programs, and Walaikum. These six programs regularly focused on Timbuktu residents and had little—if any—presence in the nearby urban center of Diré. For example, in 2009 and 2010 USAID assisted with the construction of two new radio stations in Timbuktu under the Radio for Peace Building in Northern Mali program, providing technical training and content production assistance to the operators of these facilities; Diré received no such stations.

In the field of education, the *Programme Harmonisé d'Appui au Renforcement de l'Éducation* (PHARE) program sought to improve the reading and writing of French in 10 of Timbuktu's *madrasas* (Islamic schools) and none in Diré. As one scholar pointed out, “Most Malians believe that mastering French is a prerequisite to full citizenship, and the popular demand for education services is unrelenting.”⁴¹ Through Peace Corps volunteers and collaboration with the Ministry of Education,

the Road to Reading program sought to assist teacher preparation through interactive radio instruction in *madrasas* classrooms. Regionally, teaching training programs broadcast over this network reached 1403 teachers in 217 schools in the area, with a focus on Timbuktu.⁴² On average, at least 600 students would have benefitted from USAID sponsored educational programming per year in the town.⁴³

The Micro-Finance program “Trickle Up” organized workshops for multiple local agencies and more than 60 representatives of savings groups in the 2007 and 2008 in Timbuktu, and none in Diré, although one NGO from Diré was shortlisted for future participation. This program sought to encourage women, people with disabilities, and youth to mobilize their collective savings and invest in enterprises such as small-scale agriculture, animal husbandry, or craft in their communities. By reviewing basic business concepts, sharing success (and failure) stories, and describing services offered by microfinance organizations, Trickle Up disbursed grants to more than 1000 members in Timbuktu (with women as 90 percent of the recipients); none were recorded in Diré. Similarly, the programs under Pro Mali Nord sought to increase market driven employment in northern Mali with a focus on small-scale businesses. Of the trainees in the area in 2009 and 2010, while 10 were from Timbuktu, only one was from Diré. Many of the trainees received two-month training seminars in motor pump repair, while others learned enterprise management, leather working, carpentry, and secretarial skills. In Timbuktu, this program funded the creation of a small-scale enterprise which developed photographs; no similar business was founded in Diré.

USAID also sought to build the capacity of local governments in Northern Mali, seeking to increase local officials’ efficiency, transparency, and accountability and enhancing their ability to prevent and manage conflict. A folk center in Timbuktu received assistance, as did a millennium village project area; Diré had no such organizations. Workshops under this program interacted with NGOs, communes, and civil society leaders to strengthen their communications with local government officials and to set up conflict management mechanisms. The final program of interest here was the two-year *Walaikum* project started in 2009, which sought to create a sustainable network of peace agents. The phrase “walaikum” is the traditional Arabic response meaning “and unto you” given to the greeting “peace be unto you.” In Timbuktu, 9 communes were targeted for conflict reduction programs, with 2000 people trained through more than 24 workshop sessions. Attendances included school administrators, directors of *madrasas*, the Regional Coordination of Women’s Associations, the Abarkante Association of Women, NGOs, the Regional Coordination of Youth committee, and a popular community radio station. Over the program, four imams (Islamic religious leaders) in Timbuktu participated and worked with program managers to broadcast messages of peace and tolerance over the local radio stations. (None of the imams came from Diré.) More than 350 radio broadcasts on peace and tolerance were made to the Timbuktu community, with 256 stakeholders in the area working together to create and disseminate these messages to their constituencies.

Beyond the Timbuktu residents who directly interacted with United States programming, past studies have shown how social networks rapidly transmit ideas throughout their members even in poor, underdeveloped rural areas.⁴⁴ Given the strong interdependence of ideas within geographically defined communities, even weak ties between individuals in the network can spread new behaviors and attitudes through social learning and social influence.⁴⁵ Research on Malian social networks,

for example, confirmed that they influenced individual decisions about critical health issues such as contraception.⁴⁶ Members in a community receive information about news ideas and approaches—such as solving conflicts using mediation, and not violence—from their friends, acquaintances, and family who already engage in such behavior and promote it through their connections. In short, a large percentage of Timbuktu residents were exposed to new norms both directly (through participation in U.S. government programs) and indirectly (through their social networks).⁴⁷

Diré, in contrast, had little or no such U.S. government-sponsored programming over the 2005–2010 period, but radio tests in the area showed that local radios in Diré could pick up USAID-supported shows on issues of peace and tolerance from other, nearby locations. More than half of Malians rely on local radio as their primary source of trusted news and the fact that the content often revolves around entertainment. Residents of both urban centers had the capacity, but not necessarily the motivation, to tune into programming which encouraged peace and nonviolence. Individuals in Timbuktu directly interacted with U.S. government programming in schools, workshops, and indirectly through their social networks, while Diré based respondents had neither form of contact. Whether respondents in each town chose to listen to peace and tolerance radio programs and display other behaviors is the question to which I now turn.

Data

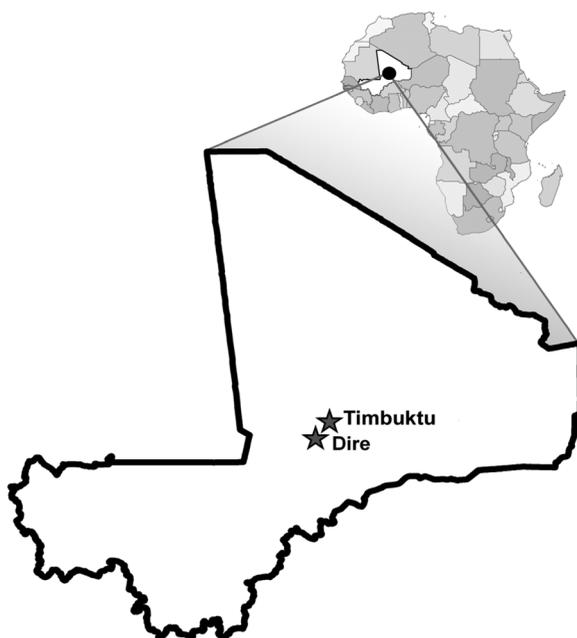
The study utilizes data collected through a 14-question survey in mid-December 2010 in the towns of Timbuktu and Diré, administered to 200 respondents in local languages by the *Association Malienne pour la Survie au Sahel* (Malian Association for the Management of the Sahel, AMSS).⁴⁸ The questions in this survey were pre-tested in Malian communities and also in the neighboring countries of Niger and Chad through their inclusion in several previous studies, including the 2009 USAID PDEV Baseline survey, the Afrobarometer survey in Mali, and 2007–2008 AFRICOM (U.S. Africa Command) public attitudes surveys.⁴⁹ This moderate sample size is not intended to be representative of the entire nation (and is not large enough to be an effective measure of such); rather, it provides a snapshot of behaviors and norms of two communities with different levels of exposure to U.S. programming.⁵⁰ The survey questions were structured as Likert-responses with scales from 1 to 5 for each answer, with 5 set as outcomes most favorable to the United States.

Respondents within these urban centers were chosen at random from the broader population by surveyors visiting the community on foot; after knocking on doors, they identified themselves as surveyors seeking out the opinions of local residents and, if admitted, administered the survey. When occupants refused to admit the enumerators (which happened in fewer than 10 cases out of the 210 survey attempts), they selected another nearby home at random. For security reasons and to avoid possible bias, they did not identify themselves as contractors of the United States government. It is certainly possible that some respondents felt uncomfortable when asked about their support for Islamic law and other sensitive inquiries, but enumerators kept track of these cases, and recorded such reactions in only three of the 200 interviews (enumerators were asked to evaluate the level of anxiety and concern of the interviewees). Further, given the training and experience of the enumerators and the similarities in responses to these sensitive questions, if there was an “interviewer effect” it was consistent across control and intervention groups.

Figure 1 below provides a map of the two towns under study, which sit side by side in the northern half of the country.

The urban centers for the study were chosen deliberately, not randomly, through a paired comparison approach to data analysis.⁵¹ Diré, the administrative center of the Diré Cercle, is a town and commune on the left bank of the Niger River in the Timbuktu Region of Mali. In 2009 its population was 22,365. Timbuktu, capital of the region of Timbuktu, has a larger population, closer to 54,000, and was designated as a UNESCO world heritage site, making it a location where tourists were more likely to travel in the past (although the coup has reduced travel to the country significantly). Ansar Eddine and its allies have, over the past few months, sought to impose a strict form of Islamic law in Timbuktu and have destroyed Sufi religious shrines in the town. While in the past Timbuktu served as the center for trade routes up to Morocco and other destinations, and may have been more popular with visitors, it nevertheless shares many of the demographic, civic participation, and gender characteristics of its neighbor Diré. Table 2 below provides a comparison between the two towns.

As Table 2 illustrates, both urban centers have Islam as their core religion and have mostly balanced sex ratios (that is, roughly equal numbers of women and men). While Diré has a smaller population than Timbuktu and has had a slighter smaller population growth rate over the past few years, it has higher rankings on several critical socioeconomic indicators, including voter turnout and poverty levels. Both also have similar levels of primary and secondary schooling, and both of these towns sit in an area of Mali with primary school attendance “well below the national average (between 26 percent and 31 percent).”⁵² Roughly 1/3 of Malians have received no formal schooling, and only 5 percent have completed university. It is important to



Note: Figure produced by Jeremy Chevrier.

Figure 1. Map of paired towns in Mali, Africa.

Table 2. Comparison of Timbuktu and Diré

City name	Population (2009)	Population growth rate (1998–2009)	Voter turnout for local elections, 2009 (percentage)	Some primary schooling (2009, percentage)	Some secondary/high school (2009, percentage)	Female (2011, percentage)	Able to meet basic needs with some non-essential goods (2009, percentage)	Islamic (2009, percentage)
Timbuktu	54453	5.7	48.74	21.3	8.5	48	72.3	100
Diré	22365	4.7	56.14	27.3	9.1	50	81.8	100

Note: Population and growth rate data from *Resultats Provisoires RGPH*, Republique de Mali, Institut National de la Statistique 2009; voter turnout from Ministere de L'Administration Republique du Mali Territoriale et des Collectivites Locales 2009; additional demographic data from ORB surveys (personal communication, Cara Carter, April 2012).

Table 3. Descriptive statistics

Variable	<i>N</i>	Mean	<i>SD</i>	Min	Max
Free to join political organizations	200	4.62	0.71	2.00	5.00
Satisfaction with services	200	3.37	0.96	1.00	5.00
Participation in decision making	199	3.28	1.32	1.00	5.00
Contact with representatives	200	2.76	1.65	1.00	5.00
Likelihood of Councilor listening	200	3.37	1.02	1.00	5.00
Efficacy	200	4.11	1.00	1.00	5.00
Is the rebellion justified?	200	4.35	1.27	1.00	5.00
Listen to tolerance and peace radio programs	200	3.98	1.07	1.00	5.00
Opinion on the U.S.	200	3.91	0.96	1.00	5.00
Should Mali work with West to fight terrorism?	200	4.44	1.20	1.00	5.00
Is violence in name of Islam justified?	200	4.44	1.11	1.00	5.00
Are al Qaeda's activities justified?	200	4.44	1.13	1.00	5.00
Support implementing Sharia	200	2.91	1.86	1.00	5.00
Is the U.S. fighting terrorism or Islam?	200	4.66	0.88	1.00	5.00
Gender	200	0.66	0.48	0.00	1.00
Ethnicity	200	0.80	0.40	0.00	1.00
Age group	200	3.29	1.48	1.00	5.00
Treatment/control dummy	200	0.50	0.50	0.00	1.00

recognize the strong demographic, religious, and socioeconomic similarities between the two neighboring urban centers; with such parallel conditions, any differences in cognitive and behavioral outcomes are more likely the result of policy interventions (in Timbuktu) or natural conditions (in Diré).

Table 3 below provides descriptive statistics about the variables captured through the interviews; notice the regular variation of more than 1 point on the 5-point scale for these questions.

The population captured through polling includes women and men from early to late adulthood (no one under 18 was interviewed) and showed diversity in its socioeconomic, political, and cultural perspectives. By and large respondents believed that the northern rebellion was not justified (with 1 being justified, and 5 being unjustified, the mean was 4.35), that the Malian government should work with the West to fight terrorism (a mean of 4.44, with 1 indicating disagreement and 5 indicating agreement), and some interest in instituting Islamic law (with a mean of 2.9, and 1 indicating support and 5 indicating a lack of support). The majority of the respondents were Sonrai, not Tuareg; most of the respondents were estimated to be in their mid-30s.

Methodology

The first step in analyzing the data uses a bivariate approach to see if there are any noticeable connections between exposure (and lack thereof) to the U.S. programming and outcomes of the key variables of interest. Cross tabulation with Chi-squared distribution tests of the treatment and control groups show a strong connection between exposure and listening to radio programs about peace and

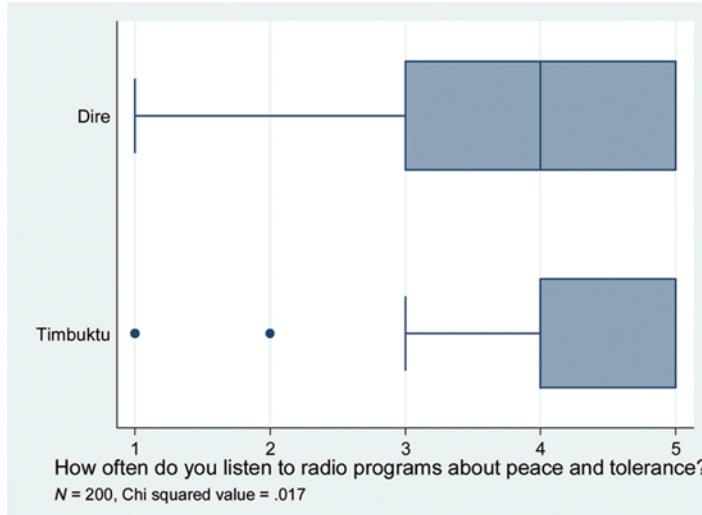


Figure 2. Box-and-whisker plot of listening frequency (color figure available online).

tolerance. Figure 2 below maps out the raw data from the polls into box-and-whisker graphs, with the line in the center of the box indicating the mean value, the ends of the whiskers showing the 5th and 95th percentile limits, and the outliers illustrated as individual points.

Notice that the difference between the responses of the two groups has a Chi-squared (probability value) of .017, meaning that there is a very strong connection between the location of the respondent in Timbuktu or Diré and his or her listening behaviors. The next outcome of interest, participation in decision making in the community, is illustrated through Figure 3 below.



Figure 3. Box-and-whisker plot of participation in community decision making (color figure available online).

The Chi-squared p value for this relationship is .002, again indicating a strong correlation between location and civic engagement. In contrast to the clear distinction in answers to questions about civic engagement and peace and tolerance program listening between Malians living in Timbuktu and Diré, bivariate tests of the other two outcomes of interest showed no measurable difference. The Chi-squared value for the answers to the question, “Is the U.S. fighting Islam or terrorism?” was .397 (indicating no strong divisions by control or treatment) while the answers for “Are al Qaeda’s activities justified under Islamic law?” had a value of .743 (again indicating little difference between the two groups). (I omit the graphs of these two outcomes for space considerations.) These initial analyses indicate the presence of a strong relationship for two of the four outcomes of interest, but these bivariate approaches have not attempted to control for confounding factors.

Table 4. Regression coefficients for listening to peace and tolerance radio

Ordered probit regression:						
Dependent variable of listening to peace and tolerance radio	Coefficient	Robust			Low CI	High CI
		Std. Err.	z	$p > z$		
Free to join political organizations	0.057	0.113	0.500	0.615	-0.165	0.278
Satisfaction with services	0.064	0.112	0.570	0.568	-0.155	0.282
Participation in decision making	0.085	0.079	1.060	0.288	-0.071	0.240
Contact with representatives	-0.017	0.053	-0.320	0.746	-0.120	0.086
Likelihood of Councilor listening	0.009	0.085	0.100	0.919	-0.158	0.176
Efficacy	-0.122	0.090	-1.360	0.173	-0.299	0.054
Is the rebellion justified or not	0.031	0.068	0.470	0.642	-0.101	0.164
Opinion on the U.S.	0.121	0.092	1.300	0.192	-0.061	0.302
Should Mali work with West to fight terrorism?	-0.052	0.070	-0.740	0.456	-0.189	0.085
Is violence in name of Islam justified?	-0.006	0.087	-0.060	0.948	-0.176	0.165
Are al Qaeda’s activities justified?	-0.037	0.069	-0.530	0.595	-0.173	0.099
Support implementing Sharia	-0.002	0.053	-0.030	0.973	-0.105	0.102
Is the U.S. fighting terrorism or Islam?	0.034	0.088	0.390	0.694	-0.137	0.206
Gender	-0.255	0.181	-1.410	0.159	-0.610	0.100
Age group	-0.024	0.058	-0.410	0.685	-0.137	0.090
Treatment/control dummy	0.448	0.167	2.690	0.007	0.121	0.775
/cut1	-1.172	0.945		-3.024	0.681	
/cut2	-0.921	0.941		-2.766	0.924	
/cut3	-0.094	0.938		-1.932	1.744	
/cut4	0.897	0.937		-0.938	2.733	

The next stage of analysis uses an ordered probit (oprobit) regression to control for various other factors, such as age, sex, demographic, socioeconomic, and cultural characteristics in illuminating potential relationships between the control/treatment groups and outcomes of interest.⁵³ Here, we focus on the *p* value for the treatment/control—should the *p* value sit at .05 or lower, it indicates a 95 percent probability that the relationship between this variable and the outcome is not due to randomness.

Table 4 demonstrates the outcomes of the oprobit model using the 16 independent variables captured by the poll to illustrate their relationship with the outcome of listening to peace and tolerance radio. Notice that for almost all of the variables, while the coefficients indicate some effect on the outcome, those coefficients are not statistically significant. The only independent variable with a statistically significant effect on the outcome of listening to such radio programs is whether or not respondents were in the control or treatment groups.

Table 5 below shows the relationship between those variables and the outcome of participating in local decision making processes. Here, several dependent variables

Table 5. Regression coefficients for participation in community decision making

Ordered probit regression:						
Dependent variable of participation in local decision making	Coefficient	Robust Std. Err.	<i>z</i>	<i>p</i> > <i>z</i>	Low CI	High CI
Free to join political organizations	0.042	0.110	0.380	0.701	-0.173	0.257
Satisfaction with services	0.523	0.118	4.420	0.000	0.291	0.755
Contact with representatives	0.106	0.055	1.930	0.053	-0.002	0.214
Likelihood of Councilor listening	0.202	0.082	2.460	0.014	0.041	0.362
Efficacy	-0.034	0.097	-0.350	0.729	-0.223	0.156
Is the rebellion justified or not	-0.063	0.075	-0.830	0.404	-0.210	0.085
Opinion on the U.S.	0.290	0.104	2.790	0.005	0.087	0.494
Should Mali work with West to fight terrorism?	-0.081	0.086	-0.930	0.350	-0.249	0.088
Is violence in name of Islam justified?	0.084	0.095	0.890	0.373	-0.101	0.269
Are al Qaeda's activities justified?	0.017	0.061	0.270	0.785	-0.103	0.137
Support implementing Sharia	-0.002	0.048	-0.040	0.967	-0.097	0.092
Is the U.S. fighting terrorism or Islam?	-0.249	0.110	-2.260	0.024	-0.465	-0.033
Gender	-0.104	0.168	-0.620	0.537	-0.434	0.226
Age (grouped)	0.180	0.060	3.000	0.003	0.062	0.297
Control	0.371	0.172	2.160	0.031	0.034	0.708
/cut1	1.937	0.988		0.001	3.873	
/cut2	2.594	0.991		0.651	4.537	
/cut3	3.242	0.997		1.287	5.196	
/cut4	4.488	1.016		2.496	6.479	

show up as statistically significant, including satisfaction with services, belief that the local councilor will listen, opinion about the United States, and age. But notice again that the variable of being in either Timbuktu or Diré has an effect almost as strong or stronger than the other variables, and its coefficient is statistically significant (with a p value of .034).

For the other two outcomes of interest, however, being in Timbuktu or Diré had no measurable impact; for justifying al Qaeda's activities under Islam, the p value for treatment/control was .520 (far above the cut-off of .05) and for the U.S. fighting Islam or terrorism, it was .298 (again, not statistically significant).

At this point the analysis has demonstrated that even controlling for confounding factors, being in the treatment or control group has a strong and significant correlation with civic engagement and listening to peace radio, but not with justifying al Qaeda's behavior under Islam or on the question of whether the U.S. is fighting terrorism or Islam. It is difficult to make a causal claim that exposure to U.S. programming leads to increased local participation and radio listening based solely on regression analysis results, however. To make a stronger claim requires re-ordering the data through propensity matching techniques to better resemble a twins-study type structure so that the treatment and control groups are alike in as many ways as possible.

Propensity matching takes an existing dataset and processes it, removing unlike observations to make the treatment and control groups as balanced and similar as possible.⁵⁴ Figure 4 below displays the new, matched dataset in histogram form along the propensity score axis, comparing the treated and untreated (i.e., from Timbuktu or Diré) data along with whether or not the data were similar enough to be comparable (on common support).⁵⁵ Note that the values at the ends of the propensity score spectrum were, by and large, off common support, and therefore not used to calculate the average treatment effect.

Table 6 below shows the average treatment effects for the four outcomes of interest (matching for the other covariates identified previously in the regression

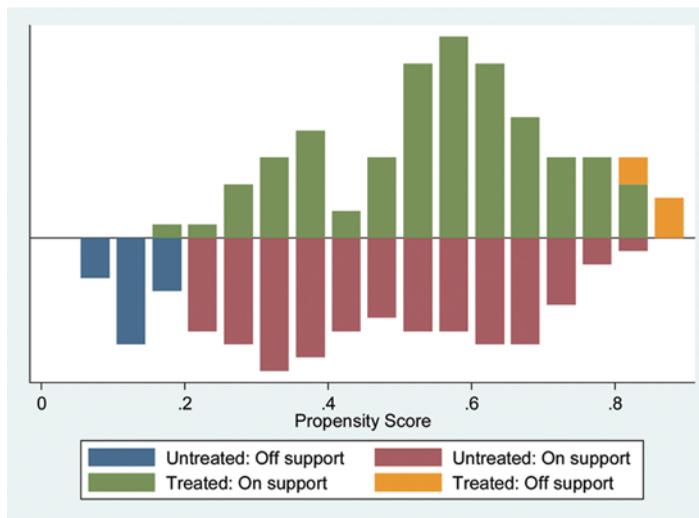


Figure 4. Example of evaluation of balance for matching (color figure available online).

Table 6. Matching outcomes for four quantities of interest

Variable of interest (ATE)	Average treatment effect	Standard error	<i>z</i>	<i>p</i> > <i>z</i>	[95% Conf.	Interval
Listen to peace and tolerance	0.43	0.19	2.25	0.02	0.06	0.80
Participate in decision making	0.40	0.18	2.25	0.03	0.05	0.76
U.S. fighting terrorism or Islam	-0.02	0.13	-0.15	0.88	-0.28	0.24
AQ justified under Islam	-0.12	0.18	-0.63	0.53	-0.48	0.24

analysis) and displays the P value along with the 95 percent confidence interval around the estimated coefficients.

The first two outcomes of interest have *p* values for their average treatment effects under the cut-off of .05, indicating that those values are statistically significant (this outcome is also visible in the 95 percent confidence intervals for these ATEs which rest entirely above zero). We see that in both cases, Malians in Timbuktu were more likely to listen to peace and radio programming and participate in local government activities than their similar counterparts in Diré. In contrast, the last two outcomes of interest had *p* values well above the statistical cut-off—meaning that the results are not statistically significant, and that there were no observable differences between the two.

Discussion and Next Steps

Bivariate analysis indicated a relationship between the responses of the Malians in two of the four outcomes of interest based on their exposure to multivector U.S. programing. Similarly, ordered probit (oprobit) regressions showed strong differences between the two towns holding other variables constant for the variables of participation in local decision making and listening to the peace and tolerance radio programming. Just as with the bivariate analyses, the regressions found no measurable differences between the two in the “higher level” answers of whether the U.S. is fighting Islam or terrorism and whether or not al Qaeda’s use of violence was justified under Islamic law. Finally, propensity score matching analysis indicated that Malians living in the town of Timbuktu were more likely to listen to peace radio and more likely to be civically engaged than their similar counterparts in Diré. The same technique showed no measurable difference between the two communities in terms of their higher level perspectives on justification under Islam for al Qaeda’s use of violence or whether the U.S. is fighting Islam or terrorism.

Geographical proximity and highly similar background conditions between the treatment and control group help keep constant many unobserved correlates. This paired town comparison—with very similar economic, demographic, and religious conditions in these neighboring communities—allows us to strongly suggest that U.S. programming served as the core factor behind these different outcomes. Thanks to propensity score matching outcomes, we can be very certain that the targeted respondents in Timbuktu had measurably different cognitive and attitudinal outcomes on two of the four outcomes of interest than their counterparts in Diré. Consistent results across three types of methodological analyses provide robust

evidence that U.S. countering violent extremism programs have had measurable, if limited, results.

Why U.S. government programming has strongly altered lower-level behavioral and cognitive functions and had little measurable impact on higher level, cultural approaches remains an unanswered question. One likely answer is that most Malians already had relatively moderate approaches to the implementation of Islamic law, antipathy towards al Qaeda, and positive views of the United States (with scores in the 4.4 range out of 5 in these fields, with 5 capturing support for pro-U.S. positions), so U.S. programming had little effect on these outcomes. That is, with most respondents already unwilling to implement strict Islamic law, ready to see the U.S. in a positive light, and willing to work with the U.S., several years of multi-vectored programming could not make them more supportive. The syncretic approach taken by many Malians towards Islam and their protests against Islamic militias who sought to implement strict aspects of Islamic law, such as the amputation of the limbs of thieves and the destruction of Sufi tombs, have underscored their lack of interest in more radicalized Islamic philosophies.⁵⁶ Local citizens are reported to have “ignored the grim spectacle” of amputation and to have been forced to contribute materials to the MOJWA officials controlling their towns.⁵⁷ This would indicate a gap between the ideologies of the violent extremist groups now in control of much of Mali’s north and the local residents living in these areas.

Another potential answer would be that it is naïve to believe that these soft-side programs alone can change critical perceptions and values in centuries-old communities which have survived the rise and fall of empires. Rather, a number of other factors beyond the scope of this study, including historical legacy, “self-perception . . . local leadership, the media, and . . . their perception of the impact of U.S. foreign policy” clearly play a role.⁵⁸ Whether the lack of major change in higher level cultural norms is due to local moderation or historical circumstances is certainly an important question for future research to answer.

While the results showed strong differences between the two communities, the selection of paired towns for this study was not randomized and there is no direct way to link individual respondents to the U.S.-sponsored programs which may have influenced their behaviors and cognitions (as this data was not collected by the survey teams). As mentioned previously, this study relies on the large amount of direct exposure to U.S. programs among the Timbuktu population in combination with indirect exposure through second- and third-level social influence. Based on these initial results, scholars and policy makers should work to create stronger evidence about the impact of multi-vectored programming through three improvements.

First, future studies should use a larger number of observations linked directly to program exposure to ensure that the captured responses are representative of the larger universe of individuals in country. While 200 respondents provides a robust sample from which to draw inference,⁵⁹ ongoing polling in Africa by the U.S. Department of Defense Africa Command (AFRICOM) affiliated contractors regularly poll 2000 or more residents. USAID, the State Department, and scholars interested in the effectiveness of U.S. government programming should invest additional resources in such field studies. Next, the best field studies of side-by-side comparisons have used completely randomized studies to better ensure a lack of bias.⁶⁰ Due to resource constraints and security concerns, this study used two contiguous, very similar towns which had very different levels of U.S. government programming, but future studies could use more stochastic-based heuristics in selecting field sites.

Finally, rather than relying on a side-by-side comparison alone, future studies should undertake a longitudinal study of interventions, beginning with baseline measurements in both the control and treatment communities and moving on to confirm individual-level exposure to relevant messages. By establishing baseline parameters in the treatment and control communities, the study could be structured along a “difference-in-difference” framework which has been quite popular in economic research.

Conclusions

Given that military solutions are not sufficient to end violent extremism, and that “an insurgency cannot be eradicated by force alone,”⁶¹ it is critical that academics, NGOs, and aid agencies work to develop “usable knowledge” about soft-side CVE policies. Such knowledge is both accurate and politically tractable.⁶² This article has sought to advance our understanding of the power of multitrack, developmental USAID programming against violent extremism in Africa. It found strong evidence that the residents of the urban center of Timbuktu exposed to five years of U.S. sponsored programs had different cognitive and behavioral outcomes than their similar neighbors in Diré in two of the four areas of interest. Timbuktu residents were far more likely to listen to peace and tolerance radio and to take part in civic activities, but showed little difference in terms of their beliefs about the U.S. fighting terrorism or Islam and Islamic justification for al Qaeda’s activities. These results confirm the results of other field experiments in Africa that programs such as reconciliation, peace, and tolerance radio may not change higher-level, abstract beliefs but can alter both norms and behavior.⁶³ Perhaps due to a combination of existing moderate views, historical circumstances, and exposure to U.S. government programming, there have been few reports of enthusiasm for the strict form of Sharia being enforced by Ansar Eddine, MOJWA, and other groups seeking to control northern Mali.

Studies in Chad and Niger illustrated that “radio programming stands out as a significant success story, well accepted—even beloved in many communities—and it has the broadest reach.”⁶⁴ Given that community radio “can be a particularly cost-effective medium with a significant reach,”⁶⁵ policy makers should invest in ways to get people to tune in more often to specific types of programming. According to the Media Sustainability Index, Mali, for example, has more than 250 FM radio stations throughout the country and much of the programming currently tends toward lighter, entertainment-based issues.⁶⁶ Radio programming which encourages inter-ethnic cooperation and nonviolence—such as that being used in Rwanda post-genocide to bridge gaps between Hutus and Tutsis—should become the baseline for future CVE toolkits in countries around the world.

Given the effectiveness of radio programming, policy makers should consider further investing in complementary programs which expand listening audiences and use norm messaging techniques to alter behaviors and attitudes. While radio programming itself is relatively inexpensive—training local residents to work as journalists and producers, setting up the physical infrastructure, and distributing hand-cranked or solar radios require small-scale investments—the interventions which build up listeners are, by contrast, somewhat expensive. Distributing micro grants, strengthening educational and NGO infrastructure, and creating new industries requires extensive knowledge of local social structures, languages, and

customs. U.S. planners should be prepared for long-term engagements in communities of interest, and this may be a challenge for politicians and political appointees in the civil service often responding to short-term electoral pressures.

Some have called Africa's current youth bulge the "cheetah generation" in that they are hungry for knowledge and opportunities while the elder generations—criticized as "hippos"—move more slowly to embrace change and have less autonomy to deviate from tradition.⁶⁷ The cheetahs have embraced social media, and their numbers—450 million and rising—indicate that future programs will need to reorient to include them and their methods of information gathering. In a decade, it may be that NGOs and aid agencies will move from radios to other, internet-based platforms for norm messaging. As the United States and other developed nations seek to influence the developing world away from the destructive messages and recruitment attempts of violent extremist organizations, policy makers should ensure that their solutions are grounded in local languages, cultures, and institutions. As violent extremist organizations hijack local institutions and seek to enforce their will on residents across Africa, USAID's work in Mali and the Sahel shows that this may be the first step towards winning hearts and minds in the attempt to counter violent extremism.

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17. The Department of Defense CONPLAN 7500 intends to "drain the swamp" for VEOs abroad. See Eric Olson, "A Balanced Approach to Irregular Warfare," *The Journal of International Security Affairs* 16 (2009), <http://www.securityaffairs.org/issues/2009/16/olson.php>.

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37. Marcia Greenberg and Marieme Lo, *Enhancing the Utility and Efficacy of USAID/Mali's 2003–2012 Country Strategic Plan through Gender Analyses and an Action Plan. Development Alternatives* (Washington DC: USAID, 2002).

38. Daniel P. Aldrich and Rieko Kage, "Japanese Liberal Democratic Party Support and the Gender Gap: A New Approach," *British Journal of Political Science* 41 (October 2011): 713–733.

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48. AMSS is a nongovernmental Malian organization established in 1991 which has been a regular implementing partner with Western development and aid organizations such as USAID, the Turing Foundation, and Living Earth and carried out the survey on behalf of USAID.
49. See AMEX Group, *Mid-Term Evaluation of USAID's Counter-Extremism Programming in Africa* (Washington DC: USAID, 2011), 2.
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52. Nikolic, "No One Grows Rich on a Gift" (see note 25 above), 24.
53. See Appendix 1 for more methodological details.
54. Paul R. Rosenbaum and Donald B. Rubin, "Constructing a Control Group Using Multivariate Matched Sampling Methods that Incorporate the Propensity Score," *American Statistician* 39, no. 1 (1985): 33–38. See Appendix 1 for more details.
55. Edward Leuven and Barbara Sianesi, *PSMATCH2: Stata Module to Perform Full Mahalanobis and Propensity Score Matching, Common Support Graphing, and Covariate Imbalance Testing*, 2003, <http://ideas.repec.org/c/boc/bocode/s432001.html>.
56. *CNN*, May 7, 2012; *BBC*, August 9, 2012; Adam Nossiter, "Amputations and Killings Shake an Embattled Mali," *New York Times*, September 10, 2012.
57. See Nossiter, "Amputations and Killings Shake an Embattled Mali" (note 56 above).
58. Mark Bradbury and Michael Kleinman, *Winning Hearts and Minds? Examining the Relationship Between Aid and Security in Kenya* (Somerville, MA: Feinstein International Center, April 2010), 5.
59. See note 50 above for details; in short, even a sample as small as 200 can provide good representation of a larger population pool of up to 70,000.
60. Jaimie Bleck, "Mali Briefing" (Presentation given at USAID's Africa Bureau in Washington DC, April 20, 2012.).
61. Moshe Kress, "Modeling Armed Conflicts," *Science* 336 (2012): 868.
62. Peter Haas, "When Does Power Listen to Truth? A Constructivist Approach to the Policy Process," *Journal of European Public Policy* 11, no. 4 (2004): 572.
63. Elizabeth Paluck, "Reducing Intergroup Prejudice and Conflict Using the Media: A Field Experiment in Rwanda," *Journal of Personality and Social Psychology* 96, no. 3 (2009): 582; and Paluck and Green, "Deference, Dissent, and Dispute Resolution" (see note 33 above).
64. AMEX 2011, *Mid-Term Evaluation* (see note 40 above), 45.
65. United States Agency for International Development (USAID), *The Development Response to Violent Extremism and Insurgency: Putting Principles into Practice* (Washington DC: Author, 2011), 5.
66. See <http://www.irex.org/resource/mali-media-sustainability-index-msi>.
67. George Ayittey, *Africa Unchained: The Blueprint for Africa's Future* (New York: Palgrave, 2005).

Appendix 1: Methodological Details

Use of ordered probit models: An ordered probit model is more appropriate here than a standard regression model because the outcomes of interest are limited, ordinal dependent variables (with a ranking from one to five), while regressions assume continuous structures for outcomes. It is important to recognize that coefficient outputs of the ordered probit model cannot be interpreted in the same way as a regression model given the cut-points assumed by the analysis.

Use of propensity score matching and average treatment effects: As Rosenbaum and Rubin (1985) (see note 54 above) have argued, propensity score matching allows

us to make stronger claims about the causal relationships between variables, as the technique is not based on correlation (which could flow causally in either direction) and instead simply measures the differences in outcomes between the two, highly similar groups. In the same way that medical experiments often use twins who are alike in as many ways as possible—genetically and environmentally, for example, for twins raised in the same household—propensity score matching drops observations that are not on common support (that is, sit within the same range of the propensity score) and seeks to create a smaller and more comparable dataset. Doing so changes an observational dataset under quasi-experimental conditions closer to actual experimental conditions, hoping to reduce bias in the observations of treatment effects. Here, I used nearest-neighbor matching with replacement to create the new dataset and then measured the average treatment effect (ATE) for the four outcomes of interest. The average treatment effect here is the difference in the means between the outcomes of treatment (Timbuktu) and control (Diré) groups.