

Experimentally testing the roots of poverty and violence: Changing preferences, behaviors, and outcomes

1. Introduction

One of the most fundamental questions in economics is what drives poverty, and one of the most influential ideas in the study of political instability is that poverty increases the risk of violence. The pathways which link poverty and violence are, as yet, inconclusive. Poverty may lower the opportunity cost of involvement in predatory activities such as insurrection (Grossman 1991; Lichbach 1995). Alternately, poverty and inequality generate grievances and increase the intrinsic value of violent or political action—the frustration-aggression hypothesis (Gurr 1971). Influenced by these two theories, militaries, aid institutions and the media prescribe anti-poverty measures in an effort to reduce the risk of political instability (World Bank 2007; Kristof 2010; World Bank 2010).

If, however, poverty and violence share common behavioral and psychological roots, then any poverty-violence correlation could be, at least in part, spurious. To assess this possibility, we propose to assess an experimental intervention successfully completed in 2011-12. The study will allow us to assess whether common behavioral and psychological roots exist, what they are, and whether they can be purposefully changed. Rather than reject the opportunity cost or frustration-aggression theories of violence, these two theoretical pathways may be augmented by preferences and skills that make some people more prone to violence and less able to emerge from poverty. In particular, we focus on the preferences and skills associated with forward-looking behavior, impulse control, and self-discipline. The results will enhance our understanding of behavioral social science, poverty, and violence.

Evidence from behavioral economics increasingly supports the idea that impatient and time-inconsistent behavior intensifies and sustains poverty (Bertrand et al. 2004; DellaVigna 2009; Banerjee and Duflo 2011). Relatedly, economists have begun to recognize the important role of “non-cognitive” skills – such as self-discipline, conscientiousness, and perseverance – on decision-making and economic performance (Heckman et al. 2006). Economists tend to treat these time preferences and skills as inherent and fixed, at least in adults. This assumption of immutability has two consequences. First, if preferences cannot exogenously change, it limits our ability to show that time preferences causally determine decision-making and poverty. Second, it limits the policy options available (e.g. to “commitment devices,” when people are aware of their inconsistency and interested in constraining their future selves, and more paternalistic measures if not). A finding that these preferences and skills can be taught or inculcated in adults would challenge conventional behavioral economic assumptions and the policy solutions proposed.

Meanwhile, scholars of violence (and to some extent political behavior in general) seldom consider the roles that forward-looking behavior, impulse control, and self-discipline play in political participation, especially contentious participation. These time preferences and skills could influence both the rational and emotional motivations for violence. The opportunity cost approach to violent decision-making implies that people make sophisticated choices over present and future costs and benefits. The psychological theories that underpin the frustration-aggression hypothesis, meanwhile, emphasize an emotional response that is plausibly affected by impulse control and self-discipline. Identifying the nature and role of these preferences in violence would be an important advance in the study of political behavior and conflict. A comparison to the direct effect of poverty on violence is doubly useful.

Time preferences and non-cognitive skills could help understand the persistence of poverty and violence in some places and countries, and explain part of the cross-national correlation between income and conflict. Economic shocks and political instability increase poverty and disrupt social and schooling systems (Blattman and Miguel 2010). A growing body of psychological evidence suggests that time preferences and skills are shaped by early developmental circumstance linked to childhood poverty (Hackman and Farah 2009). If, as we hypothesize, these time preferences and skill deficits lead to further poverty and violence, it could help explain the existence of poverty and conflict traps.

The proposed study will collect and analyze long-term endline data following a successfully completed experimental intervention, designed by the Principal Investigators to test: the causes of persistent, extreme poverty; the extent to which this poverty leads to violence; and the role and malleability of psychological and behavioral determinants of poverty and violence. The intervention targeted “high risk youth”—poor young adult males who live and work on the streets of Monrovia in Liberia, a country

recently emerged from 14 years of civil war. These youth are persistently poor, often homeless, and live unstable, violent lives. Many are ex-combatants and the majority is engaged in illicit activities. Like poor urban males in poor countries around the world, they are regarded as one of the greatest threats to political instability in the country, because of their potential for mobilization into rebellion, riots, political violence, and organized crime—fears supported by preliminary data described in this proposal.

The intervention was designed, carried jointly, and completed by the Principal Investigators and three non-governmental organizations (NGOs) in Liberia, from 2010 through early 2012. 1000 high-risk youth were randomly assigned to one of four groups: (i) an unconditional cash transfer; (ii) a behavioral intervention of mentoring and cognitive-behavioral therapy designed to instill forward-looking behavior, impulse control, and self-discipline; (iii) the behavioral intervention followed by cash, or (iv) neither.

Preliminary data (taken six-months after an initial pilot intervention of 100 youth, and one month after 500 youth began the first scaled version of the intervention) suggest that the main hypotheses are borne out: that impulse control, patience and self-discipline can be instilled; that these changed preferences and skills lead to increased savings, investment, and economic performance, as well as lower levels of aggression and political violence. We also observe a direct impact of poverty reduction and violence.

These findings are merely short-term, however, and the smaller sample is statistically underpowered. The work to be supported by this proposal—the longer-term (one-year) follow-up survey and analysis of the full sample—is required to assess the substantive and statistical significance of the results and the sustainability of behavior change. The pilot exercise refined the team’s understanding of the operational environment, tested and refined the measures and design, and provided proof of concept. This proposal describes these completed procedures and findings and outlines a plan for longer term data collection and analysis, as well as the broader intellectual, policy and training impacts.

2. Relevant literature

The PIs come from the fields of politics, economics, and psychology, and bring together theory and measurement from each discipline. Existing ideas and findings fall under four related research questions.

2.1 What are the causes of persistent, extreme poverty?

The standard economic account locates persistent poverty in market failure. In this view, the poor have the potential to earn high returns, but fixed costs of start-up along with market imperfections (like credit constraints) impede these investments when starting from a low base of human and physical capital (Banerjee and Newman 1993; 1994). Emerging experimental and observational studies suggest that small entrepreneurs can indeed earn high returns to capital, and some of the impact heterogeneity is consistent with the idea that credit constraints are binding—for example, returns are highest among the most initially credit constrained (Banerjee and Duflo 2004; de Mel et al. 2008; McKenzie and Woodruff 2008; Banerjee et al. 2010; Blattman et al. 2011).

An alternate “behavioral” view highlights the role of time preferences, limited attention, and other cognitive biases in supporting persistent poverty. For instance, impatient or impulsive people will not make high return investments if these do not include high immediate gains. Even patient people with circumstantial problems with inhibition or self-control will find it difficult to save and invest earnings productively (Bertrand et al. 2004; Harrison and List 2004; Banerjee and Mullainathan 2009; DellaVigna 2009). It is possible that those with impulsive decision-making will become poorer over time and remain there, or may start poor and remain impoverished. The associations between poverty and cognitive biases may be bidirectional and mutually reinforcing. For instance, developmental environments associated with poverty or violence may adversely influence development of the cognitive skills and habits that lead to more forward-looking behavior (Hackman and Farah 2009). These skills – such as self-discipline, conscientiousness, or perseverance – appear to raise productivity in employees and entrepreneurs (Heckman et. al 2006).

While evidence of time inconsistent preferences is widespread, little research has linked them causally to poverty, in part because it preferences (it is sometimes believed) cannot be varied experimentally. Instead, evidence of the importance of time preferences comes indirectly, such as evidence that those who are aware of their future self’s myopia may avail themselves of commitment devices to save or otherwise behave “well” (Ashraf et al. 2006).

These two potential poverty traps, have dramatically different policy implications. Access to credit markets or cash may push the credit constrained out of poverty. However, if self-control or time preference differences are a primary source of persistent poverty, such programs will be wasted or worse, lead to debt. In contrast, self-control problems can be overcome with some form of commitment device if the person is aware of the problem and a paternalistic approach to aid and policy if not (McCormick 2003; Ashraf et al. 2006; Thaler and Sunstein 2008).

This study employs a two-period formal model of occupational choice, between petty labor versus entrepreneurial self-employment, incorporating these two root causes of poverty—credit market failure and time preferences (see Blattman et al. 2011 for full model). The poor have a high-return entrepreneurial activity available to them at some fixed cost of start-up, with returns increasing with ability. Only the most forward-looking individuals will invest in the high-return activity, without inexpensive credit or a sudden influx of capital. The remainder will remain stuck in low-return petty labor. With access to a cash windfall, individuals may elect to become entrepreneurs. The likelihood of this switch, the degree of investment, and the level of income in the second period all increase in ability and forward-looking preferences. Moreover, a shift in preferences towards more future-looking behavior may lead to an increase in investment and incomes, especially for the most present-biased, and in concert with cash.

2.2 Does poverty lead to a heightened risk of violence and instability, and if so why?

Rational choice theories. Rational choice theories suggest that violence is instrumental, or purpose-driven, and that the poor are more likely to engage in predatory activities because they have a lower opportunity cost of participation – an idea rooted in economic theories of crime (Becker 1968). This “opportunity cost” hypothesis is highly influential, and the central mechanism in the most prominent formal theories of state formation, political transitions, ethnic struggle, and economic development (Acemoglu and Robinson 2006; Bates 2008; Esteban and Ray 2008; Besley and Persson 2011).

One problem with the opportunity cost approach is that, while plausible, it is unclear whether or not it is true. Evidence for the opportunity cost theory is thin, sometimes contradictory, and subject to publication bias (Blattman and Miguel 2010; Bazzi and Blattman 2011). There is also little to no experimental micro-evidence. Two new studies by one of the PIs identify a reduced form causal relationship between employment programs and lower aggression or attitudes to insurrection among high-risk populations in Uganda and Liberia (Blattman and Annan 2011; Blattman et al. 2011). In neither existing study, however, is it possible to tell whether poverty and violence are jointly determined, or if increases in employment and income alone cause a fall in violence.

A second problem with the opportunity cost theory is that it speaks poorly to the many forms of political expression and violence that have little direct opportunity cost in terms of foregone time or income. As a basis for understanding political violence generally, it is a poor candidate.

Grievance-based and frustration-aggression theories. A second body of theory emphasizes emotional and psychological roots of political violence and other anti-social behavior. An influential school of sociologists and criminologists argue that blocked goals produce strain on the social system, leading to *anomie*: deviance, delinquency and crime (Durkheim 1893; Merton 1938; Cloward and Ohlin 1961; Cohen 1965; Akers 2000). An analogous literature in political science stresses a more individualistic approach and response, especially Gurr’s (1971) relative deprivation theory.

These theories are partly rooted in a body of work in psychology that identifies the roots of aggression in “frustration”—an external condition prevents a desirable outcome and thus provokes an emotional response (Dollard et al. 1939). Berkowitz (1993) summarizes the evolution of scholarship on the subject through the 20th century. The frustration-aggression hypothesis, however, is only one source of potential aggression. While some aggression is instrumental in nature, the focus of psychology is on the emotional roots. Any unpleasant stimuli or stressor has the potential to provoke aggression, frustrated goals being just one of these. That reaction may be more serious when there is a perception of unfairness or injustice, where there is a clear source, and where the obstruction or irritation is deliberate. Importantly, this body of psychological research stresses that individuals may also inhibit their actions because of learned behaviors, internalization of social norms, or fear of punishment or reprisal.

There is a large body of case evidence that supports the idea that political violence is an emotional response to adverse events, mainly studies of individual rebellion and the motives for action (Scott 1976;

Wood 2003). These studies, however, emphasize the violation of norms of justice and fairness. While injustice is clearly important, it is not clear that any poverty-violence link travels through injustice alone. As with the opportunity cost theory, there is little credible micro-level evidence (and no experimental evidence) on a link from income- or inequality-based grievances to aggression. Scholars of riots question the very existence of a poverty-violence link (Horowitz 2003; Wilkinson 2004; Scacco 2008) as do a number of empirical studies of terrorism (Krueger and Maleckova 2003; Abadie 2006). In the absence of rigorous micro-level data, however, it is difficult to conclude one way or the other.

This study is designed to identify causal links between poverty and violence and attitudes towards violence by directly manipulating poverty. Additionally, this study proposes that above described differences in self-control may augment the link between poverty and violence, a hypothesis this study will test by directly manipulating self-control through a behavioral intervention.

2.3 Do poverty and violence have a common set of determinants?

In principle, violence could be a product of the same personality and time preferences that contribute to poverty and other adverse outcomes, leading to an observed correlation between violence and poverty independent of any causal relationship between these two outcomes.

The behavioral and cognitive roots of political behavior, especially violence, are some of the least studied determinants of political violence. This is not to say ignored: indeed, the influential grievance-based model is fundamentally psychological, especially the explanation for “why men rebel”. In his famous book of that name, Gurr (1971) drew on aggression research from the 1930s and 1960s to argue that frustrated ambitions (especially relative deprivation) are the root of anger and will create an intrinsic value of insurrection that helps overcome the collective action problem in rebellion.

Since Gurr, political psychologists have developed our understanding of the psychology of particular forms of violence, such as suicide terrorism (Crenshaw 2000; McCormick 2003). There has been some exploration of the relationship between risk and violence (Kuran and Sunstein 1999) but the behavioral roots of rebellion and communal violence remain underexplored, especially quantitatively or experimentally, and do not always draw on psychological research after the frustration-aggression ideas of the 1930s.

In principle, political violence could be a product of the same skills and time preferences that contribute to poverty and other adverse outcomes. As discussed above, there is both theory and preliminary evidence for a link from skills and time preferences to persistent poverty. It is not yet clear, however, which preferences and skills matter, or their malleability. Patience, impulse control and perseverance, for instance, could be the function of an underlying cognitive ability rather than a choice or “preference”. In particular, a psychological source of self-control problems (and inconsistent preferences) could be low levels of inhibition, the ability to stop oneself from responding to a desirable stimulus or responding in an overlearned way. Another possible source would be working memory, the ability to hold abstract concepts in mind (like the future itself, one’s utility in the future, and the steps required to connect today’s actions to tomorrow’s well-being). These skills are both termed ‘executive functions’ by psychologists (Miyake et al. 2001), are linked with the function of the prefrontal cortex (Fuster 2002), and may have both environmental and genetic contributions to their development (Evenden 1999).

Violence is plausibly a product of these same behavioral traits and preferences. For instance, disinhibition, measured by questionnaire or behavioral tests, is a robust correlate of criminal behavior in developed countries (Avshalom et al. 1994; Krueger et al. 1994). Intuitively, in the same manner that present-biased economic decisions are made, both instrumental and emotional violence could emerge from a poor ability to hold in mind the long-term implications of actions today, or of a preference for present action, regardless of possibly negative future consequences. Moreover, to the extent that crime or political violence entails risks to future earning potential or to future social status more broadly, any present bias (whether due to skills or preferences) will discount or ignore these long-term costs and hence lead to more violence.

The PIs are not aware, however, of any effort to rigorously empirically measure and link the specific time preferences and personality traits of interest to poverty by economists or to violence by political scientists. This represents one of the most significant intellectual contributions of this study.

2.4 Can these underlying personality traits and preferences be changed, or are they immutable?

This last research question is a precondition and foundation for the previous ones, but is an important finding in and of itself. Traditionally, economists have treated these time preferences and skills as relatively innate and immutable in adults. Thus economic interventions stress “nudges” and commitment devices rather than preference or skill change (Thaler and Sunstein 2008; Banerjee and Duflo 2011). Some economists suggest preferences are mutable, but the focus is typically in childhood. Becker and Mulligan (1997) argue that people may invest in improving their preferences and correcting human frailties. The schooling system, for instance, consistently reinforces inhibition control and future focus, as do other aspects of child socialization.

Psychologists also tend to treat executive function as invariant after childhood, and even childhood interventions on executive function have had variable success in transfer to un-trained executive function tasks or real-world behavior (Diamond et al. 2007). Experiments aimed at improving cognitive performance in adults often show only moderate and task-specific improvements, suggesting that cognitive function is difficult to change (Klingberg 2008). There are two challenges with existing skill interventions, however. First, until recently the theory was under-developed, and recent advances may increase the success with which skills can be enhanced (Jaeggi et al. 2008). Second, populations with lower executive function may be more malleable in terms of skill change (Holmes et al. 2009).

Moreover, some forms of training and therapy focused on impulse control, anger management, or addiction treatment have reported success. Children that are economically “socialized” by, for example, being taught to use money responsibly, given good examples of sound financial decision-making, and exposed to savings mechanisms like bank accounts have been shown to be more future-oriented and prefer saving over spending excess cash (Webley and Nyhus 2005). Whether adult preferences are malleable has yet to be answered, in part because it is usually assumed. In developed countries, there is believed to be some role for cognitive therapy, especially training in interpersonal skills and impulse control, among alcoholics and addicts (Platt et al. 1988) and impulsive children (Bear and Nietzel 1991).

Finally, a large number of aid and development programs—trainings, ‘sensitizations’, and counseling—are predicated on behavior and preference change. These attempts may be misguided. In truth, however, almost no one has studied whether time preferences are fixed. One recent study (Voors et al. 2011) finds that exogenous exposure to violent conflict in Burundi does in fact lead to higher discount rates. This is suggestive that preferences can change, but does not address the question of whether a targeted intervention can effect a similar result.

It is thus conceivable, albeit controversial, that preferences and non-cognitive traits are malleable and can be shifted through learning, counseling or socialization. We are not aware of attempts to test this proposition. Moreover, where behavior change is attempted, the research is often short-term, lab-based, and confined to developed countries and well-educated populations (like college students). The proposed study will look for both short-term and long-term (one year) behavioral change in the real world with an important and understudied population. A finding of sustained behavior change would have enormous repercussions for the study of behavioral social science more generally.

3. Experimental Context

3.1 Liberia

Liberia is a post-conflict country that recently suffered through 14 years of civil war. Eight years after the end of the war, thousands of young ex-combatants and war-affected youth live, beg, steal, and work on the streets of Monrovia and other cities, making a meager living. Many are homeless. Those with a little capital sell goods out of wheelbarrows. Poorer youth hawk wares they can carry. The poorest do physical labor (such as loading cars), beg or steal.

The Government of Liberia has identified these poor and underemployed youth as one of two major threats to durable and lasting peace (Annan and Blattman 2011). State capacity is weak, frustrations are many, and jobs are few. While currently disorganized, there is a risk that these youth can be mobilized into violence or organized crime. In 2011 they were the primary targets for mobilization into the war in Cote d’Ivoire and post-election violent protests and riots (Blattman and Annan 2011). In neighboring Sierra Leone, a similar population has been mobilized around elections to intimidate voters (Christensen

and Utas 2008). Youth like these can probably be found in any city in the world, and in each place their potential for instability is an acute source of concern.

Each of the issues highlighted above—extreme poverty, credit imperfections, present-oriented time preferences, violence, and petty crime—are accentuated in post-conflict countries like Liberia. Masses of people have been stripped of their assets, and financial markets are nearly non-existent. Two decades of war means that a generation may have been socialized into more impatient or present-focused behavior.

3.2 Study Sample

The sample has already been selected and the experimental interventions will complete in April 2012. A pilot intervention (Phase 1) of 100 men ran from January to March 2011. A Phase 2 of 400 youth ran from June to August 2011, and a Phase 3 of 500 additional youth will run from February to April 2012. All 1,000 were recruited from the greater metropolitan area of Monrovia, Liberia's capital city of 1.5 million.

The intervention targeted two different "types" of young adults aged roughly 18 to 35. The first type is "hard-core" street youth who are typically homeless, underemployed, may be involved in drugs and crime, live in extreme poverty, and are thought to be danger to society and themselves. The second type is very poor youth believed to be on the cusp of these high-risk activities. Many are at least partially employed, typically as street vendors or motorcycle taxis.

Study participants were recruited and screened by the non-profit organizations implementing the program (discussed below). In order to minimize potential spillover effects, subjects were recruited from four different areas of the city, each densely populated market areas with thousands of youth matching the target group. The hard-core types in our sample are characteristic of the worst off (i.e. least stable and most high-risk) 5% of youth in their neighborhoods. The very poor types are drawn from a slightly broader spectrum of youth. Any spillover effects should be minimal and bias impacts to zero if they exist.

Based on qualitative observation and baseline data from Phases 1 and 2, the men in the study have an average age of 25, and about half are ex-combatants. They report relatively high daily earnings (typically \$5 to \$10 per day) but are asset poor and often hungry or homeless—28% slept on the streets in month prior to a baseline survey. It is also a violent population: 29% reported stealing in the previous month and 14% admitted to using violence while doing so. 15% declared using weapons either while committing crimes or in fights, and 25% had been involved in physical fights in the past 6 months. 57% reported abusing alcohol and 36% said that they use marijuana or hard drugs. Finally, 13% said that they are closely connected to a former armed commander, and hence may be easily remobilized into violence.

The Liberian men in this sample present a few puzzles. In spite of earning relatively high incomes they remain persistently poor in terms of assets and lifestyle. And, in spite of the fact that most youth can articulate a clear vision for a better, more peaceful life, they also lead strikingly violent and risky existences. If economic or psychological poverty traps do not exist in this population, it is difficult to imagine that they exist anywhere.

4. Experimental Design

4.1 Hypotheses and Predictions

- A. *The feasibility of behavior change.* Time preferences (present versus future orientation, time-inconsistency) and skills such as inhibition control, executive function, and perseverance are malleable, even among adults, and a short program of behavioral change can lead to sustained change in each of these preferences and skills.
- B. *The behavioral roots of poverty.* Present bias, low executive function, and low perseverance decrease investment and increase the likelihood of persistent poverty. An exogenous improvement in these behavioral traits will lead to more forward-looking economic decisions, such as savings and investment rather than consumption, and will decrease poverty, with impacts that are increasing in ability and the availability of liquid capital.

- C. *The behavioral roots of violence.* Present bias, low executive function, and low perseverance also influence levels of aggression and participation in risky behavior, including crime, aggression, and political violence. Hence the poverty-violence correlation is spurious, at least in part.
- D. *The economic roots of poverty.* Many of the poor have high-return opportunities but are unable to achieve them due to incomplete credit markets and fixed costs to start-up. Accordingly, cash windfalls will result in increased investment and lower poverty. Impacts will increase in initial ability, future-oriented time preferences, and initial credit constraints.
- E. *The impact of poverty on violence.* Lower poverty may also directly reduce the propensity for violence, through three possible channels: (i) opportunity cost, (ii) absolute deprivation (adverse stimuli and stress lead to aggression, and/or (iii) relative deprivation.

Specific predictions and inference based on the intervention and research design are discussed below.

4.2 Experimental Interventions

To test these propositions, the study evaluates two completed cross-cutting interventions, one behavioral and one economic. The design is cross-cutting, or factorial, allowing identification of the individual and interactive effects of each of the two interventions:

	Unconditional cash transfer	No transfer
Transformation Program	“TP + Cash”	“TP Only”
No Transformation Program	“Cash Only”	Control

4.2.1 Behavioral intervention: the “Transformation Program”

The “Transformation Program”, or TP, is an indigenously-developed program, designed and implemented by a Liberian civil society organization, the Network for Empowerment and Progressive Initiatives (NEPI). NEPI is an organization run by and for ex-combatants, street youth, and high-risk youth, has extensive experience working in this population, and has run such programs for several years.

The program has four components: (i) group instruction and exercises, meeting three times weekly for eight weeks; (ii) personal visits and counseling by the counselor during the program and for one month after the 8-week session; (iii) behavioral “homework” assignments, to practice new skills; and (iv) post-program, individual follow-up by the trainer/counselor, to encourage maintenance of the behavior change.

The program is rooted in a variety of behavior change therapies, including therapies for addiction control (such as Alcoholics Anonymous). The program aims to accomplish a number of changes: to identify and encourage a new identity as a responsible, forward-thinking, self-controlled and respectable person; to teach the behaviors and norms associated with this style of living; to help people practice and develop the cognitive skills and habits associated with this style of living; to help people with strategies and skills to overcome setbacks and emotional or social impediments; and to provide positive (non-pecuniary) reinforcement and encouragement of these behaviors.

4.2.2 Economic intervention: Unconditional cash transfer

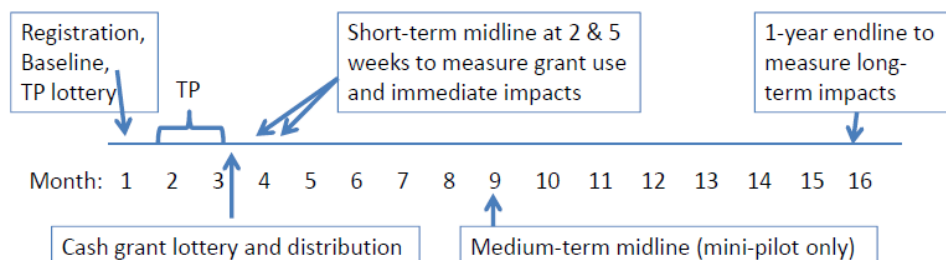
The second experimental treatment is a cash transfer of \$200. The median earnings of a street youth are roughly \$25 a week on average, so the transfer represents roughly two months of earnings. No conditions are placed on use of the transfer.

In part to mitigate risks of harm, transfer recipients received one to two hours of basic instruction on the day of transfer on how to save the money in a safe manner—such as placement in a bank account or local savings institution. Recipients were also instructed in the basics of business management and encouraged to consider the cash transfer an opportunity to invest. Thus subjects are primed to use the transfer for investment purposes. But it was repeatedly stressed that they may use the transfer for whatever they choose.

4.3 Randomization

Participants are assigned to each of the treatment groups via public lottery. 75% of those enrolled receive either the Transformation Program, business start-up capital, or both. The basic design is that, within each phase: 25% are offered TP only, 25% are offered cash only, 25% are offered both, and 25% are maintained as a pure control group.

The interventions are sequential. The TP lottery is held after recruitment and baseline survey, and the cash transfer lottery is held with the full sample, stratified by TP treatment, after the conclusion of TP. Once a youth is enrolled in the study, the timeline is as follows:



4.4 Inference and Identification

The PIs propose the following empirical tests to examine each of the five hypotheses.

A. *The feasibility of behavior change*

We can conclude that behavior change is possible by observing whether the transformation program (TP) has large and persistent impacts on the preferences and personality traits underlying economic, social, and political decision-making. We propose multidimensional measures at 1 and 12 months post-program.

First we should observe a positive treatment effect of TP on traditional economic measures of discount rates and time consistency, using three methods: (i) incentivized intertemporal choice games; (ii) hypothetical intertemporal choice games; and (iii) self-reported preferences. (Measurement is described in more detail below.) Second, we should observe a positive treatment effect on standard psychological skills such as conscientiousness, locus of control, working memory, and inhibition. Third, we should observe a positive treatment effect self-reported “real-world” behaviors associated with forward-looking behavior and consistency, including savings and investments in education or health.

The behavioral roots of poverty

We can conclude that these preferences and skills are determinants of persistent poverty if we also observe a treatment effect of TP on economic decision-making and outcomes.

First, the transformation program should have a positive treatment effect on levels of business investment and expenditures, savings, income and assets/consumption.

Second, those who receive the cash transfer alone should have lower levels of investment and savings than those who receive both the cash transfer and the transformation program, measured both by spending immediately after the transfer (measured one month after the transfer) and by levels of business assets and investment, savings, income and assets/consumption one year after the transfer.

Third, observationally, baseline measures of time preferences and other skills should be associated with low levels of investment, income and poverty at endline, and more present-biased spending of the cash transfer.

Fourth, the cash transfer should yield greater returns for those with higher levels of patience (either at baseline or as a result of the transformation program). Similar heterogeneity analyses can be performed for other characteristics such as executive function, cognitive impulsivity, and ability.

B. *The behavioral roots of violence*

We can conclude that these preferences and skills are determinants of aggression, political and non-political, if we observe a positive treatment effect of TP both on these preferences and on measured levels of aggression and violent participation.

There are two main confounders to this mechanism and conclusion. It is possible that TP will change norms or beliefs about violence and its acceptability and risks and thereby reduce violence not through an effect on time preferences and self-control but through norms and the intrinsic utility or disutility of violent action. If so, we should observe a treatment effect of the TP on self-reported norms towards violence, criminality and other anti-social behaviors, and possibly an increase in forms of collective actions, such as contributions to public goods or political participation.

Second, if changed preferences also reduce poverty, and if poverty has a direct effect on aggression, then this will confound the *direct* effect of preferences and skills on violence. Observational evidence that will weigh in favor of (but not prove) a direct behavioral link includes: a low treatment effect of the cash treatment on aggression (see below); a positive treatment effect of TP on aggression controlling for endline poverty; and a positive association between baseline preferences and endline aggression, controlling for baseline income. To explore these mediation effects, we also (a) intend to pursue sensitivity analysis to these confounders (Imai et al. 2011), and (b) explore the mechanism through our systematic qualitative data and analysis, discussed below.

C. The economic roots of poverty

We propose to test the economic roots of poverty by looking the treatment effect and impact heterogeneity of the cash transfer.

High marginal returns to the random injections of capital (in particular, returns greater than the rate of interest available to small firms) will imply the presence of credit market imperfections and the utility of small grants as a poverty alleviation mechanism.

Returns should be increasing in baseline ability, degree of credit constraints, and time preferences, and lower among existing entrepreneurs who have already paid any fixed costs of starting up.

D. The impact of poverty on violence

Finally, we may conclude that poverty has a direct effect on the propensity for violence if the effect of the cash treatment is to reduce both poverty and aggression.

This design does not allow us to distinguish experimentally between competing mechanisms, but the pattern of treatment effects may be more supportive of some mechanisms than others. For instance, the opportunity cost mechanism is an unlikely explanation we observe an impact on types of violence which have a low opportunity cost in terms of time or personal risk, such as interpersonal aggression, expressive violence, or political expression.

5. Data collection

Data is collected from each research subject five times: (i) at baseline prior to the intervention; (ii and iii) at short-term follow-ups 2 and 5 weeks after completion of the transformation program and distribution of transfers; and (iv and v) at two longer-term endline follow ups at 11 months and 13 months. (Truly “long-term” follow ups may be attempted in later years if one-year behavior change is sustained.) This study employs quantitative surveys, behavioral games, and qualitative research techniques to capture key outcome variables and possible predictors of treatment heterogeneity.

High frequency measurement is used to achieve more precise estimates of low autocorrelation outcomes like income and consumption and violence. Multiple measurement is a less expensive way of obtaining statistical power than adding to the sample size and the number requiring an expensive intervention (McKenzie 2011).

This proposal is only for the support of endline data collection for the final 500 youth (surveys iv and v above). Based on experience in the pilot, tracking respondents 7 months after treatment, we anticipate roughly 5 to 10% attrition in the full sample, uncorrelated with treatment status.

5.1 Quantitative data

Survey questions drawn from political science and economics. Survey data include family background and support, education, skills, war experiences, and physical health; economic activities; income, consumption, and expenditures; profits; savings, debt, assets, investment; access to credit; social support, peer networks, and group and community participation; mobility and settledness; sense of

relative wellbeing and deprivation; sense of security; substance abuse; political participation; participation in and attitudes towards violence and criminal activity; self-reported risk and time preferences.

Quantitative survey questions drawn from psychology. Self-reported survey questions adapted from standard tools used widely by psychologists measure antisocial behavior, such as reactive-proactive aggression (Raine et al. 2006), self-reported perseverance such as the GRIT scale (Duckworth et al. 2007; Duckworth and Quinn 2009), self-reported impulsivity from the Barrett Scale (Carver and White 1994), personality measures like neuroticism and conscientiousness (Costa and McCrae 1997), locus of control (Sapp and Harrod 1993), and locally-adapted measures of self-esteem, depression, post-traumatic stress disorder, and alcohol and drug addiction.

Incentivized behavioral games drawn from behavioral economics. Interactive behavioral games measure impatience, time-consistency, risk attitudes, loss aversion, and ambiguity aversion. These games involve a decision between two options that can result in a payment now versus a future period (a scheduled visit for the intervention and study) in the case of time preferences, or two immediate choices with varying amounts of risk and ambiguity. The stakes involve small but real amounts of money equivalent to about a half day's wages.

Interactive games drawn from psychology. Interactive games are used to measure different elements of cognition (skills), including executive function (inhibitory control, working memory), planning, and impulse control. To measure these, the research team has adapted standard tools used by psychologists for this population and the Liberian context. To measure executive function tasks were adapted from the NEPSY-II Arrows subtest (Korkman et al. 2007; Korkman et al. 2007), Wechsler Intelligence Test for Children IV, Digit Span subtest (Wechsler 2004). To measure planning a maze test was adapted to estimate the amount of time spent planning participants exhibited before beginning the test. To measure spatial problem solving a puzzle was created. To measure impulse control two tests were developed using the principals first used in the Stanford Marshmallow experiment (Mischel et al. 1989).

5.2 Qualitative validation of sensitive and non-sensitive survey data

Measurement error is always a concern, but especially so when dealing with self-reported data on potentially sensitive subjects, such as criminal activities and substance abuse. Under-reporting of these across all study participants would be one thing, but measurement error correlated with treatment status would bias results. For example, if the Transformation Program participants, post-program, under report their substance abuse to a greater degree than the non-TP study participants, than this would upwardly bias the observed treatment effect of the TP.

Accordingly, the research team is using a variety of methods, hopefully in such a manner that our results can be carried over to other researchers facing similar issues, whether the sensitive topic is crime or voting or income or sexual behavior. Most importantly, to ensure that our interview measurement correctly captures variance in sensitive questions, trained Liberian qualitative researchers use participant observation, shadowing, and informal interviews to collect data from a sub-set of study respondents (stratified by treatment status) on 6 variables (1 highly sensitive, 3 moderately sensitive, and 2 non-sensitive). Respondents chosen for qualitative validation are assigned a qualitative researcher to spend intensive time with them and their friends and family, in the days immediately following the quantitative survey, in order to come as close to possible to learning the "true" answer to each of these 6 questions (i.e. did he smoke marijuana during the two week period preceding the quantitative survey – yes or no). These qualitative findings are then analyzed in conjunction with the survey data, to determine measurement error on these variables, and the measurement errors' correlation with treatment status, and these findings are generalizable to the rest of our study sample.

Formal analysis of this "qualitative validation" approach is an added contribution of this study. Preliminary analysis of validation data from 80 subjects so far shows that both sensitive and non-sensitive survey questions (e.g. drug use versus mobile phone use) are understated by 10 to 20 percent, irrespective of sensitivity. This underreporting is uncorrelated with the transformation program treatment. Those who received cash treatment are slightly less likely to understate both sensitive and non-sensitive behaviors (though the effect is not statistically significant with the present sample size of 80, and will be expanded in future rounds). Systematic underreporting will tend to bias treatment effects towards zero, as will the positive association between cash treatment and reporting accuracy, implying that we are likely to estimate a lower bound of the effect of the program on both sensitive and non-sensitive behaviors.

In addition to the “qualitative validation” procedures, the survey also attempts survey experiments (such as list randomization, and anonymous response) to test for underreporting of sensitive behaviors.

5.3 Qualitative research

The goal of qualitative work is to improve understanding of study participants’ lives and mechanisms of change. The PIs have and will continue to conduct extensive, unstructured interviews with members of all treatment and control groups. More importantly, however, throughout the study, three qualitative researchers—Liberian university graduates trained by the PIs and qualitative research specialists brought to Liberia to conduct training—conduct semi-structured interviews with a subset of roughly 40 study participants before, during, and after treatment. Repeated interviews over one year are central to building trust and understanding the process of change for the qualitative study subjects. The subsample were selected to exhibit a range of initial baseline characteristics, and are balanced by treatment. The qualitative work is used in conjunction with the quantitative work, suggesting new hypotheses and variables to capture in the quantitative analysis, and ways to interpret quantitative findings. Additionally, during the Phase 1 pilot, a qualitative researcher attended all TP sessions to document the sessions. Qualitative researchers are also present on the day of the grants disbursement, observing program participants and staff, and recording reactions and interpretations. Finally, the qualitative researchers also collect the impressions of each TP counselor on the intervention and individual class members.

6. Preliminary results and power calculations

6.1 Evidence from previous, completed studies

This study and research design emerge from two post-conflict field experiments completed by the PIs with high-risk males. Both studies find a reduced-form treatment effect of employment programs on (i) investment and poverty, and (ii) aggression and violence. Neither experiment, however, can answer crucial questions: the effect of preferences and skills on poverty and violence; and whether poverty reduction itself reduced aggression or the intervention affected aggression through other channels.

The first and most direct predecessor to the current project is a randomized evaluation of an ex-combatant reintegration program in Liberia, which provided agricultural skills and inputs along with the transformation program (from the same NGO) to 600 ex-combatants engaged in illicit activities in rural “hotspots” (Blattman and Annan 2011). The program resulted in a one-third increase in agricultural activity, little change in current income (perhaps due to the timing of the survey) but resulted in a 20% increase in durable assets, indicating an increase in permanent income. We observe some evidence of an increase in patience according to declared preferences, but were unable to measure with incentivized games. Finally, we observe little significant change in interpersonal aggression but a decrease in some measures of political violence, including a 33% lower likelihood of interest in, or connections to, re-recruitment in the war in Cote d’Ivoire occurring during the endline survey. Since both the economic and behavioral interventions were offered in concert, however, we are unable to parse the effect of each.

A second study is a randomized evaluation of a government cash transfer program to 9,000 youth in conflict-affected northern Uganda (Blattman et al. 2011). Two years after a \$400 cash transfer, we observe a roughly 30 to 40% average rate of return and a 50% increase in incomes. Patterns of heterogeneity are consistent with the hypothesized role of credit constraints and time preferences, but we are unable to experimentally identify the importance of time preferences. We also observe a 50% decrease in male aggression and disputes with community members, police and leaders, especially among those with more present-biased time preferences at baseline. We were unable to measure other forms of violence, including political violence, due to the resistance of the Ugandan government.

6.2 Evidence from the pilot intervention

Preliminary data analysis from this study uses short term (ST) follow-up data (1-month post-program) from phase 1 and phase 2 (finding 484 of 500), and medium-term (MT) data (5- and 7-month post-program) from the phase 1 pilot group (finding 92 of 100). Because of the small sample and short-term nature of the data, the results are not conclusive. They do, however, suggest that our basic hypotheses are correct and that the planned sample size of 1000 will provide adequate statistical power.

Table 1 highlights average treatment effects (ATEs) for each of the three treatment groups: TP only, Cash only, and both TP and Cash. Only key dependent variables are highlighted. Variables are standardized, so that ATEs represent standard deviation (SD) changes. While asterisks indicate the statistical significance *within these small samples*, we also estimate statistical power for the full sample of 1000 with two endline measures spaced two months apart, for 2000 observations clustered at the individual level. Specifically, we calculate the Minimum Detectable Effect (MDE) for a two-tail hypothesis test with statistical significance (α) of both 0.10 and 0.05, statistical power of 0.80, and an intra-cluster correlation of 0.25. As variables are standardized, the MDE is identical across all dependent variables: 0.14 SD for $\alpha=0.05$ and 0.124 SD for $\alpha=0.10$. These MDEs ignore efficiency gains from pre-specified baseline covariates: strata indicators, demographics, and a lagged dependent variable (McKenzie 2011). The MDE is 0.133 SD for $\alpha=0.05$ if the proportion of individual variance explained by covariates (R^2) is 0.10. All three MDE thresholds are listed in Table 1. All coefficients over 0.124 are bolded, indicating expectations that if these short term treatment effects persist or grow over time, we will have power to detect them.

A. The feasibility of preference and skill change

Based on a set of incentivized inter-temporal games, we observe a roughly 0.16 SD increase in future-orientation (patient behavior) in the short term (ST) for both TP Only and TP+Cash. The effects persist in the medium term (MT). We observe a larger decrease in time-inconsistent (impulsive) behavior in incentivized game play in the medium term, falling 0.53 SD with TP and 0.72 SD with TP+Cash (significant even in this sample). In the medium term, Cash Only is also associated with increases in patience and decreases in time impulsiveness, a finding possibly consistent with the Becker and Mulligan (1997) hypothesis discussed above. For TP+Cash we also see a 0.13 SD medium term increase in a “conscientiousness” personality measure, based on self-reported behaviors to do with being disciplined, organized, and achievement-oriented.

B. The behavioral roots of poverty

The TP also has a direct effect on investment and poverty, especially when combined with Cash. Business expenditures increase by 0.35 and 0.42 SD for Cash only and TP+Cash in the short-term, but this increase is only sustained in the medium term in the TP+Cash group, suggesting that both behavioral and economic poverty traps may constrain these youth, and both constraints must be relieved for sustained progress. We observe the same pattern in the stock of savings (not shown). Our measures of poverty are weekly cash earning, an index of durable assets, and non-durable consumption. Again, sustained improvement is generally greatest in the TP+Cash group. These represent large absolute decreases in poverty—20% to 40% lower than in the control group. In regressions not shown, TP also leads to an almost complete elimination of homelessness. Based on the previous cash grant experiments outlined above, the PIs expect these income and poverty treatment effects to grow larger over time as business investments accumulate and experience increases.

C. The behavioral roots of violence

Those who received the TP program also report large decreases in illicit activity and aggression. The number of crimes (stealing) reported falls by more than half, 0.58 SD for TP and 0.69 SD for TP+Cash in the medium term. As noted above in the measurement error verification exercise, these stealing activities are underreported but the error is not associated with treatment, suggesting these are minimum impacts. The frequency of severe fights and disputes fall by 0.41 SD with TP in the medium term (a halving) and an index of acts of political violence (especially participation in violent protests during the election season) falls by 0.178 in the short term (post-election violence data are only available for Phase 2 ST data).

D. The economic roots of poverty

The cash transfer has a large direct impact on poverty, though mainly in the short term. As noted above, persistent medium term gains appear to be associated with both TP and Cash. We expect investments and poverty gains to accumulate over time, however, and anticipate that Cash will have a high-powered impact, though not so large as Cash+TP. Correlations not shown are also consistent with the model of credit constraints articulated above.

E. The impact of poverty on violence

Finally, and most interesting, the decrease in illicit activities, aggression and violence from the cash treatment is of a comparable magnitude to the decrease from the TP intervention. These results suggest

that there is a large direct effect both on instrumental and expressive violence as a result of poverty, suggesting that both the opportunity cost and deprivation channels have credence. Some of the effect of TP on aggression undoubtedly also passes through the income channel, because of the poverty alleviation effect of TP.

Table 1: Average Treatment Effects from Phase 1 Pilot and Phase 2 Short-term Survey

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Patience level in incentivized game		Time inconsistency in incentivized game		Conscientiousness Index		Stock of business assets		Weekly cash earnings	
	ST	MT	ST	MT	ST	MT	ST	MT	ST	MT
TP only	0.159 [0.137]	0.219 [0.323]	-0.164 [0.129]	-0.53 [0.336]	0.0614 [0.0403]	0.00114 [0.0915]	0.0652 [0.0579]	0.02 [0.320]	0.073 [0.108]	0.227 [0.247]
Cash only	0.0702 [0.145]	0.395 [0.325]	-0.157 [0.154]	-0.451 [0.336]	0.0108 [0.0431]	0.0418 [0.0908]	0.352 [0.0725]***	0.04 [0.318]	0.16 [0.105]	0.0414 [0.198]
TP and Cash	0.162 [0.138]	0.13 [0.334]	-0.0102 [0.137]	-0.718 [0.347]**	0.0969 [0.0411]**	0.134 [0.0931]	0.422 [0.105]***	0.499 [0.326]	0.166 [0.105]	0.0424 [0.244]
MDE ($\equiv .10$, $R^2=0$)	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124
MDE ($\equiv .05$, $R^2=0$)	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140
MDE ($\equiv .05$, $R^2=.1$)	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133
Observations	426	87	426	87	383	90	852	90	852	176
Individual subjects	426	87	426	87	383	90	477	90	477	92
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	-20
	Stock of durable household assets		Non-durable expenditures		# of stealing activities		Frequency of severe disputes/fights		Index of acts of political violence	
	ST	MT	ST	MT	ST	MT	ST	MT	ST	MT
TP only	0.00598 [0.144]	-0.236 [0.320]	0.195 [0.107]*	0.122 [0.145]	-0.162 [0.130]	-0.582 [0.388]	0.0401 [0.106]	-0.41 [0.248]	-0.178 [0.143]	n.a.
Cash only	0.154 [0.153]	0.241 [0.318]	0.394 [0.102]***	0.0713 [0.119]	-0.22 [0.123]*	-0.709 [0.330]**	0.0493 [0.114]	-0.45 [0.251]*	-0.206 [0.153]	
TP and Cash	0.284 [0.145]*	0.0641 [0.326]	0.327 [0.0817]***	0.217 [0.171]	-0.302 [0.120]**	-0.691 [0.325]**	-0.00437 [0.0956]	-0.291 [0.253]	-0.129 [0.145]	
MDE ($\equiv .10$, $R^2=0$)	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	
MDE ($\equiv .05$, $R^2=0$)	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	
MDE ($\equiv .05$, $R^2=.1$)	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	
Observations	377	90	852	176	849	176	852	176	377	
Individual subjects	377	90	477	92	476	92	477	92	377	

Robust standard errors in brackets, clustered by individual subject

All specifications include lagged dependent variables, baseline demographics, and strata dummies

Where observations exceed the number of individuals it is due to multiple measures at different intervals

Bold coefficients are projected to have statistical power at least $\equiv 0.10$ with 1000 individuals & 2 rounds of measurement ($N=2000$)

**** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ with current sample size*

7. Collaborative and organizational arrangements

Given the large number of actors, some explanation of the organization of the intervention and the research is in order. The Principal Investigators directed the intervention design, and will conduct all research and analysis. They will be supported by two pre- or post-doctoral graduate assistants for analysis, who will have opportunities for co-authorship.

The cash grant and transformation program interventions themselves were funded by the World Bank and a US-based private charitable foundation, via grants to Innovations for Poverty Action (IPA).

IPA is a nonprofit organization directed by leading academics that seeks to identify and foster innovative approaches to solving development problems. IPA has a proven history of conducting randomized controlled trials with a broad range of implementing organizations and service providers in a variety of settings across the developing world. IPA has extensive experience providing such support, with field offices in 15 countries around the world and projects in 46 countries.

IPA was responsible for overseeing the implementation of the intervention and experimental procedures and overseeing the data collection. To implement the treatment interventions, IPA subcontracted two NGOs. CHF International recruits and registers eligible study subjects and delivers the cash transfer. CHF is an international development organization that works in post-conflict, unstable, and developing countries, and helps communities to direct the improvement of their own lives and livelihoods. CHF had never previously collaborated with researchers on an experimental pilot and research program. A Liberian NGO, the Network for Empowerment and Progressive Initiatives (NEPI) delivers the Transformation Program.

Fieldwork on IPA projects is overseen by a Project Coordinator (PC) or Project Associate. PCs are supervised directly by the Principal Investigators, receiving substantial on-the-job mentoring and training in research design and management, and preparing them for future PhD work and to lead studies on their own. A Liberian Survey and Tracking Manager (STM) works alongside the PC, to help manage all aspects of the fieldwork. STMs learn how to develop and test survey questionnaires; recruit, train and supervise enumerators; manage IPA's relationship with and tracking information on the study respondents; and help ensure that all aspects of the study are carried out in accordance with the study design, and to best meet the study's objectives. The Liberian qualitative research assistants who conduct the qualitative validation have received several years of in-house training by IPA, research affiliates, and graduate students, and additional Liberian qualitative researchers will be trained under this grant. IPA has also trained dozens of Liberian enumerators in survey and behavioral games administration, and is providing more intensive training, including research management training, to a core group.

All NSF funds will be used to support the post-intervention research activities of the PIs, their graduate students, and longer-term data collection and training conducted by IPA in Liberia.

8. Timeline

IPA and its partner organizations began implementation of the intervention, and collection of administrative, baseline, and post-program administrative data, in December 2010. IPA has completed this for the Phase 1 and Phase 2 cohorts, and should complete this for the phase 3 cohort by July 2012.

This proposal requests support for data collection, analysis, and dissemination. The primary data collection activity is the longer-term endline survey the 500 youth in Phase 3. This is planned for approximately 11 months and 13 months after the end of the treatment interventions, and for the phase 3 cohort is anticipated to take place in May and July 2013. The qualitative validation work would take place at the same time, but only for 100 respondents.

Data cleaning and analysis will take place throughout the two years of the grant, but by October 2013 all fieldwork should be complete. During the second and final year of the grant the focus will be on data analysis; academic paper and policy report writing; preliminary presentation of results to expert audiences for initial feedback, followed by broad-based dissemination of results; providing advice to the Government of Liberia, World Bank, UN agencies, and NGOs in youth and employment programming; preparing a program manual that will allow other agencies to replicate the program interventions; and assisting the Government of Liberia in applying the study's findings on a large scale.

9. Broader Impacts and Significance

First, the study is expected to have wide-ranging benefits to society. The findings will enable the design and targeting of more effective youth employment and social stabilization programs, and improve the effectiveness of foreign aid.

We expect the intervention to inspire replication and scaling of such efforts – leading policymakers in both the Liberian government and the World Bank are already aware of the study, and are awaiting the results. It is also conceivable that analogous programs could be implemented with high-risk youth populations in the US and around the world. To this end, one of the central products of the study will be a scalable, replicable, low cost intervention. The intervention will be “manualized” (i.e. fully documented for ease of replication) and available freely online. The PIs are presently advising the Liberian government and several NGOs on similar, larger scale programs, and the results of this evaluation will feed directly into large-scale nation-wide programs. The results and manualized intervention are expected to influence programming for high-risk youth and replication beyond Liberia, especially through the World Bank. Press and blog coverage is expected, with the program already featured in a BBC special in 2011. In addition to publication in academic working paper series and journals, results will be disseminated through an in-country workshop, through IPA’s wide-ranging policy network, and through PI Christopher Blattman’s blog, which alone has nearly 100,000 regular readers.

Second, the project will promote teaching, training and learning. Two pre- or post-doctoral research assistants will participate in experimental analysis, and have the opportunity to conduct dissertation field work in Liberia and build opportunities for co-authorship. In 2009-2011, the PIs assisted four PhD students in this regard, all of whom are now co-authors on related studies. The IPA project implementation staff are also PhD applicants, and their training is central to the study.

In addition to training current or aspiring PhD students, the PIs and IPA engage in extensive local training of staff and partner organizations. Over the past four years, IPA has trained more than 50 Liberian staff in research methods – not using narrowly trained short-term enumerators, but rather providing longer-term and comprehensive training, that will allow these staff to eventually take leadership roles on studies, both within and outside of IPA. IPA also works with its Liberian staff to help them retain their IPA positions while concurrently completing university coursework, and a number of IPA staff are enrolled in degree programs in economics, sociology, demography, and social work. IPA alumni commonly go on to take leading roles in research and monitoring and evaluation in government agencies and the NGO sector.

The PIs and IPA will also (i) conduct NGO and government trainings in impact evaluation; (ii) provide technical assistance to the government, NGO and UN community; and (iii) send at least one Liberian government or NGO officials to the IPA international executive education program.

Finally, the PIs are committed to data and instrument availability. Survey instruments and behavioral games are already available on request from academics, and will be available freely online by December 2012, including novel behavioral games and cognitive tests, with preliminary results. The data will be made available online in public-use archives for analysis and replication before the end of the grant period, upon publication of a working paper.

10. Previous NSF support

Christopher Blattman is presently supervising (and, per Yale University policy, a PI) on a NSF Graduate Research Fellowship for Robert Blair, SES-1124323, “Doctoral Dissertation in Political Science: From Peacekeeping to State-Building: Governance, Violence, and the Withdrawal of the United Nations Mission in Liberia,” 7/1/2011 to 7/1/2012.

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