Appendix

A1 Descriptive Statistics

A1.1 Within-country Descriptive Statistics

Table A1 provides descriptive statistics for the control variables used in our within-country analyses in Liberia. The first three columns report descriptive statistics for the rural survey sample, the next three for the urban survey sample, and the last three for the urban games sample. As a result of the screening process we used to maximize comprehension in the tax compliance game, the last of these three samples is not representative of any particular population.

Compared to survey respondents from the same city (Gbarnga), our games participants are younger, more educated, less likely to be employed (because many were students), and more likely to be male. This is unsurprising, given that men typically have easier access to education than women in Liberia, and given that youths tend to be better educated than elders. Compared to urban survey respondents, rural survey respondents are poorer, less educated, more likely to be employed (because most are farmers), and more likely to be male. As of the 2008 sample, the average rural community in our sample had a population of roughly 1,000 residents, a majority of whom were employed but illiterate, with no formal education.

Table A2 provides descriptive statistics on exposure to foreign aid and perceptions of government in Liberia. The first three columns report descriptive statistics for the rural sample, the last three for the urban sample. (We did not measure these variables in the tax compliance game sample.) Urban respondents are much more likely than rural ones to report knowing about or using projects funded by foreign donors. Urban respondents are also much more likely to have used or heard about Chinese projects than American ones. Among rural respondents, these proportions are roughly equal. Urban respondents are more likely than rural ones to have worked for a foreign contractor, or to know someone who has, and are more likely to have worked for (or to know someone who has worked for) a Chinese contractor than an American one. Again, for rural respondents these proportions are roughly equal.

While respondents in both samples generally perceive the Liberian government as equitable in its treatment of Liberian citizens, only 30% of rural respondents and 17% of urban ones describe the government as free from corruption. (All of these variables are coded such that positive values correspond to favorable perceptions.) Respondents are more divided on the government's commitment to openness and transparency. Nonetheless, most believe they have an obligation to pay their taxes, though the size of the majority varies with the way the question is framed. For example, when asked whether they believe they have an obligation to pay taxes even if the government makes bad policies, 51% of rural respondents and 68% of urban respondents answer that they do. In contrast, when asked whether they believe they have an obligation to pay taxes even if donors provide most public goods, 75% of rural respondents 84% of urban ones answer that they do. This is suggestive evidence in and of itself that awareness of foreign provision of public goods does not undermine tax morale.

Table A3 provides descriptive statistics for perceptions of foreign donors in Liberia. (As in Table A2, all

variables are coded such that positive values correspond to favorable perceptions.) Across questions and across samples, Liberians have more favorable perceptions of US donors than Chinese ones. Across almost all questions, urban survey respondents have more favorable perceptions of foreign donors than rural respondents, and urban games participants have even more favorable perceptions. This disparity in perceptions likely reflects demographic differences across samples, as youths tend to be much more supportive of foreign donors than elders. This latter correlation holds across all three samples; other demographic characteristics are more weakly and inconsistently correlated with our measures of support.

A1.2 Cross-country Descriptive Statistics

Table A4 provides descriptive statistics for the control variables used in our cross-country analyses, organized by Afrobarometer survey round. (We exclude round 1 because it is missing many of the questions we use to operationalize state legitimacy.) We control for religion (Muslim or not), age, education (none or some), gender, an indicator for whether the respondent lives in an urban area, and an indicator for whether the respondent lives in the president's home region. We also control for distance to the capital city, and for the number of protest events within 30, 40, or 50km of each respondent before the first Chinese project was planned within that same radius.

Across rounds, the average Afrobarometer respondent is a 37-year-old rural Christian with some years of education. The proportion of Muslims surveyed grew dramatically over the six rounds. (This likely reflects the introduction of additional countries with large Muslim populations into the sample.) Women and men were equally likely to be surveyed. Protest events were almost twice as frequent in round 2 as in round 6, though again, this may reflect changes in the composition of the sample.

Table A5 reports descriptive statistics for perceptions of government in the Afrobarometer samples. We construct an additive index of trust in government based on respondents' trust in the police, the military, the local council, the parliament, the president, and the courts. We code indicators for whether respondents trust each of these institutions a lot or somewhat, then add those indicators into an index, scaled from 0-6. We also code an indicator for respondents' perceptions of democracy in their country, as well as three indicators for tax compliance and morale. These are identical to the indicators used in the observational component of our within-country analysis.

Our index of trust in government rose from round 2 to round 3, fell from 3 to round 4, rose again from round 4 to round 5, and fell again from round 5 to round 6. Perceptions of democracy fall more steadily: across countries, 58% of respondents expressed confidence in the quality of democracy in their country in round 2, compared to 50% in round 6. Just under three-quarters of respondents expressed the belief that government has a right to tax citizens—a proportion that increased from 70% in round 2 to 74% in round 6. Our remaining two outcomes are only available for rounds 5 and 6. Relatively small minorities believed tax evasion is easy (16% and 18% in rounds 5 and 6, respectively), and even smaller minorities reported having ever evaded taxes themselves (8% and 6%, respectively).

To measure exposure to Chinese aid, we use data from AidData's *Tracking Chinese Development Finance* dataset. For each cluster of Afrobarometer respondents, we code whether they live within a 30, 40, or

50km radius of a Chinese project. Drawing on the approach in Isaksson and Kotsadam (2018), we compare planned projects—those that have been announced, either formally (commitments) or informally (pledges)—to projects that were either active (i.e. in the construction or implementation phase) or completed by the time an individual was surveyed. Tables A6 and A7 report the number and proportion, respectively, of Afrobarometer respondents living near Chinese projects at each status (completed, active, or planned) and at each buffer (30, 40, or 50km). Table A7 further disaggregates these numbers by sector (all, infrastructure, and other).

A2 Balance Tests

Tables A8, A9, and A10 report balance tests for the rural survey experiment, urban survey experiment, and tax compliance game, respectively. We observe some incidental imbalance on gender, education, and household wealth in the urban survey experiment, with respondents in the government treatment group wealthier and more likely to be female, respondents in the China treatment group less educated and more likely to be male, and respondents in the US treatment group poorer and less educated. This is likely a result of our relatively small survey sample in Gbarnga. Nonetheless, our controls are not jointly significant predictors of treatment assignment, and we cannot reject the null that their coefficients are all 0 ($p = 0.371$ in an F-test for joint significance).

We observe some incidental imbalance on age in the tax compliance game, with control group participants older than participants in the other treatment groups (though our controls are not jointly significant predictors of treatment assignment in the game either). To improve precision and further reduce the risk of confounding, we include all of these controls in all specifications of our analyses.

A3 Robustness Checks

A3.1 Measurement Error in Within-country Analysis

One potential source of bias in our within-country analysis is measurement error in our independent variables. We rely on survey self-reports to measure exposure to Chinese aid in Liberia. This raises the possibility of recall bias or other forms of measurement error, some of which may be correlated with our dependent variables. It is not obvious why these biases would attenuate our estimates for the impact of Chinese assistance. Nonetheless, the threat of bias remains.

As a plausibility probe, Table A11 reports the correlation between our survey-based measures of exposure and the proximity of each of our sample communities to the nearest planned or completed Chinese project as recorded by AidData. The dependent variable in the first column is an additive index of four dummies capturing four different types of exposure to Chinese projects; the dependent variables in the remaining columns are the four dummies themselves. (Descriptive statistics for these dummies are pro-

vided in Table A2.) All specifications include the same individual- and community-level controls used in the manuscript. Standard errors are clustered by community.[1] Proximity is measured in units of 10km, with larger values indicating closer proximity.

Three caveats are warranted. First, because none of our sample communities is located within 30km of a planned project, and because only one is located within 40km, we opt to use continuous measures of proximity rather than binary ones. Second, because there were no active projects in Liberia at the time of data collection—or at least none with sufficiently precise geographic and temporal data for us to use—we compare completed to planned projects only. Finally, because our urban respondents all live in the same city (Gbarnga) and therefore within more or less the same distance of the nearest Chinese project, we run these analyses using our rural sample alone.

With these caveats in mind, we find that self-reported exposure to Chinese projects is strongly positively correlated with proximity to the nearest completed Chinese project in the AidData dataset. The correlation is strongest for two of our four indicators: knowing about a Chinese project, and using the services that China provides. This makes sense, as we would expect respondents to know more about Chinese projects, and to be more likely to use them, after project completion.

In contrast, the correlation between exposure and the nearest *planned* project is zero or even negative (though the negative correlation is only marginally significant at conventional levels, and is driven by just one of our four indicators). This too makes sense, as we would not expect respondents to be more likely to work for Chinese companies, to know people who work for Chinese companies, or to use the services China provides in locations where projects are planned but have not yet been started. Together these results lend credence to our self-reported proxies for exposure to Chinese aid. While these proxies are undoubtedly measured with some error, we see no reason to suspect measurement error is sufficient to explain our null results.

A3.2 Statistical Power in Within-country Analysis

A potential source of Type II error (false negatives) in our within-country analysis is lack of statistical power. As a robustness check, we test whether the observational component of our analysis is sufficiently powered to detect a more intuitive (albeit still contested) relationship in the data. Table A12 reports the correlation between Liberians' exposure to foreign aid and their perceptions of foreign donors themselves. As in the manuscript, for purposes of comparison we distinguish Chinese aid from its US counterpart. Our dependent variables are additive indices composed of six dummies each, coded to capture respondents' perceptions of the effectiveness and fairness of each of the two donors. (Descriptive statistics for these dummies are provided in Table A3.) The specification is otherwise identical to that in the manuscript.

We find that the more respondents are exposed to US projects, the more strongly they support the US's role in public goods provision in Liberia. Perhaps more surprisingly, the same relationship holds for

[1] Because the regressions in columns 2 through 5 are linear probability models, we use robust cluster standard errors to correct for heteroskedasticity. And because distance to the nearest Chinese project is highly correlated with the district in which each community is located, we omit district fixed effects from these regressions.

exposure to Chinese projects and perceptions of China. While the magnitude of the latter correlation is only about 70% the magnitude of the former, both are highly statistically significant, and both are consistent across samples. This belies anecdotal accounts suggesting that China's presence inflames grievances among those most directly affected by it.

Interestingly, exposure to Chinese aid is positively correlated with perceptions of *US* donors as well, though the size of the correlation is only about a third (rural sample) to a half (urban sample) the size of the correlation between exposure to US aid and perceptions of the US. One possible explanation for this finding is that exposure to Chinese projects improves perceptions of foreign donors more generally. Another is that exposure to China's allegedly abusive hiring and management practices strengthens support for donors that adopt fairer, more inclusive practices, while still strengthening support for China itself.

We explore these possibilities in further detail elsewhere. Whatever the explanation, the fact that we are able to detect these relationships at all suggests that lack of statistical power is unlikely to explain our other null results. At the very least, the positive correlation between Chinese aid and perceptions of China must be dramatically larger than any potentially negative correlation between Chinese aid and perceptions of government.[2]

A3.3 Robustness to Alternate Buffers in Cross-country Analysis

In the manuscript we report cross-national results using a 30km buffer. Intuitively, we would expect Chinese projects to have the strongest impact on those living closest to them, as these individuals are more likely to experience repeated exposure, and to benefit from the services China provides (or, alternatively, suffer from the damage China causes). As the data on Chinese development finance that we use is only precise to within 25km of a known location (AidData precision code 1 or 2), 30km is near the minimum buffer we can use.

As a robustness check, in Tables A13 and A14 we replicate our analysis using 40 and 50km buffers instead. Using a 30km buffer and differencing away the siting effect, we found no evidence that Chinese projects reduce trust in government, diminish perceptions of the quality of democracy, or erode tax compliance or morale. Using 40 or 50km buffers instead, the effects of completed projects on perceptions of democracy and tax compliance and morale remain null. If anything, citizens living near active or completed projects seem to be less rather than more likely to believe tax evasion is easy (relative to those living near planned projects). This is consistent with our findings at 30km, and may reflect increased government presence in these locations. Moreover, citizens living near active projects tend to be more optimistic about the state of democracy in their country, and are less likely to engage in (self-reported) tax evasion. (Both of these latter effects revert to nulls after project completion, however.)

[2] Statistical power is a function of (1) the magnitude of the correlation, (2) the sample size, and (3) the variance of the outcome. The stronger the correlation, the larger the sample, and the smaller the variance of the outcome, the greater the power. In our case, respondents' perceptions of government are *less* variable than their perceptions of China or the US, and our sample sizes are identical for almost all of our outcomes. Statistical power could only explain the dramatic disparities in our results if the correlations themselves are actually dramatically different.

As we expand our bandwidth, however, we do find stronger evidence of a negative impact on trust in government, even after differencing away the siting effect. On the one hand, this is surprising, as citizens who live further away from these projects should be less likely to be affected by them. On the other, they should also be less likely to benefit from the services these projects provide. Citizens who know about Chinese projects but do not benefit from them may blame the government for perceived inequities in the geographical distribution of foreign aid. While this interpretation is speculative, it is consistent with the idea that foreign aid can boost state legitimacy if citizens take advantage of—and credit government for—the benefits it provides.

A4 Ancillary Analyses

A4.1 Heterogeneous Treatment Effects in Tax Compliance Game

In our pre-analysis plan, we pre-specified five hypotheses about heterogeneous treatment effects (HTEs) in the tax compliance game. We hypothesized that:

1. The rate of tax compliance will be least sensitive to the realized frequency of audits in the government treatment group.

2. The rate of tax compliance will be most sensitive to the realized frequency of audits in the China treatment group, increasing as the realized frequency of audits increases.

3. The more negatively participants feel about Chinese donors, the less they will comply in the China treatment group.

4. The more negatively participants feel about American donors, the less they will comply in the USA treatment group.

5. The more participants blame the Liberian government for any harm caused by foreign donors, and the less they credit the Liberian government for any benefits brought by foreign donors, the less they will comply in the China and US treatment groups.

Hypotheses 1 and 2 follow from our intuition that tax compliance among citizens who know that services are provided by foreigners should be more a function of coercion than of legitimacy, and should decrease as the perceived threat of coercion decreases. Hypotheses 3, 4, and 5 follow from the intuition that our vignettes might reinforce participants' priors about foreign donors, and about the Liberian government itself. (We measured these priors in a survey administered before the start of the game.)

Figure A1 reports results for hypotheses 1 and 2, while Figures A2, A3, and A4 report results for hypotheses 3, 4, and 5, respectively. Because audits were randomly assigned, the HTEs in Figure A1 are causally identified. The remaining HTEs are not. We measure respondents' perceptions of China and the US using the same series of questions described in Section A3.2 above. We measure attribution of credit and

blame using two questions, the first capturing the extent to which respondents blame the government or foreign donors for any harm that the latter cause, and the second capturing the extent to which respondents credit the government or foreign donors for any benefits that the latter bring. Responses are coded as dummies in both cases. For all of these analyses we simply interact each treatment dummy with the corresponding dimension of heterogeneity, then report fitted values along each dimension.

From Figure A1, we find no evidence to suggest that tax compliance was affected by the realized frequency of audits either within or across treatment groups. In other words, it seems that our participants were not sensitive to the threat of audits during the game. While somewhat surprising, this may reflect features of our research design that we deemed necessary to ensure participants' comprehension. In particular, neither the size of the fine nor the probability of being audited in the first place changed with the frequency or magnitude of under-reporting. In this setup, while the threat of auditing might have affected participants' decision to hide *any* of their income, conditional on that decision, it should not have affected the *proportion* of income they decided to hide (for any proportion greater than 0).

We did, however, test several alternate specifications designed to better reflect this setup, including an OLS specification in which the dependent variable is the number of rounds in which each participant hid any income; a linear probability model in which the dependent variable is a dummy for hiding any income in any round; and a within-subject fixed effects specification in which the dependent variable is a dummy for hiding any income in round r and the independent variable is a dummy for being audited in round $r-1$. None of these alternate specifications yielded statistically significant results, suggesting either that the size of the fine was too small to deter under-reporting, or perhaps that our Liberian participants were so accustomed to government dysfunction that they did not believe they would actually be fined in the first place. As we discuss in Section A6.6, only one of our participants mentioned fear of being audited as a motivation for their actions in the game.

Nor do we find that the effects of the vignettes varied with the strength of participants' priors about Chinese aid. From Figure A2, differences in tax compliance between participants with the most and least favorable priors about China are substantively small and statistically insignificant at conventional levels. We find little evidence that the effects varied with participants' priors about US aid either, with a couple of exceptions. From Figure A3, while tax compliance in the US treatment group remains constant regardless of participants' priors (bottom right panel), in the government treatment group, the more positively predisposed participants felt towards the US, the higher their rate of compliance (top right panel). The interpretation of this result is not obvious, especially since it is not causally identified. But it belies concerns about a potential trade-off between the legitimacy of foreign donors and the legitimacy of the state itself. At least in the context of the game, the more support Liberians express for US assistance, the more willing they are to pay taxes.

Finally, from Figure A4, we do find some evidence that participants who blame government for any harm caused by Chinese donors are more prone to tax evasion in the China treatment group. In this group, the predicted rate of tax evasion among participants who blame government is 52%, compared to 31% among those who do not (top panel)–a statistically significant ($p = 0.04$) difference of 21 percentage points (or almost 60%). We find no evidence of a similar effect in the US treatment group, nor do we find evidence of heterogeneous effects among those who do and do not credit government for the benefits

foreign donors bring (bottom panel). These results partially confirm our fifth hypothesis above, suggesting that participants filtered the information we provided about Chinese aid through their prior beliefs about the appropriate attribution of blame for any harm that China causes.

A4.2 Cross-country Analysis Distinguishing Infrastructure from Other Projects

China's focus on large-scale infrastructure projects may limit the government's ability to claim credit, exacerbating any deleterious effects on state legitimacy. In Table A15 we replicate our cross-country analysis distinguishing projects focused on infrastructure[3] from those focused on other sectors.[4] These two categories may not be mutually exclusive: it is possible, for example, that some projects classified as targeting the "health" sector involved building new infrastructure, while some projects classified as "water supply and sanitation" did not. Without more detail on the nature of each project, we are limited to these rather coarse categorizations, and our results should be interpreted with this caveat in mind.

As Tables A6 and A7 indicate, there were very few Afrobarometer respondents living near active infrastructure projects in any round of the survey. (Indeed, in all but one round the proportion of respondents living near active infrastructure projects was less than 1%.) As a result, we lack sufficient statistical power to run these disaggregated specifications at the 30 or 40km buffers, and so report results using the 50km buffer alone. Again, we compare planned projects to active or completed ones in order to correct for potential siting effects.

We find little evidence to suggest that infrastructure projects have differentially negative effects on tax compliance or morale. While a naive comparison would suggest that respondents living near completed infrastructure projects are more likely to engage in tax evasion, more likely to believe tax evasion is easy, and less likely to believe the government has a right to tax, only the last of these results is statistically significant after differencing away the siting effect, and then only marginally so. The effects of completed non-infrastructure projects on tax compliance and morale are null as well. (Active non-infrastructure projects appear to reduce tax evasion, but also appear to undermine citizens' belief in the government's right to tax. Neither of these effects persist after project completion, however.)

Our results also suggest, however, that the negative effects of Chinese projects on trust in government in Tables A13 and A14 are largely if not entirely a function of infrastructure rather than non-infrastructure projects. Infrastructure projects tend to be sited in locations where trust in government is relatively high, but have negative effects on trust in government after they are complete. The opposite is true for other types of projects (though the difference between coefficients is only marginally significant).

Our data on Chinese aid is very sparsely distributed when disaggregated in this way, and these results should be interpreted with caution. Nonetheless, they raise the possibility that different types of Chi-

[3]These include projects classified as belonging to any one of the following sectors: communications; energy generation and supply; industry, mining, and construction; transport and storage; or water supply and sanitation.

[4]These include projects classified as health; population policies/programmes and reproductive health; education; agriculture, forestry, and fishing; emergency response; government and civil society; other multisector; and other social infrastructure and services.

nese aid may have different and, in some cases, negative effects. Why exactly this might be requires additional research. One possibility, as we suggest above, is that the greater visibility of infrastructure projects makes government credit claiming more difficult; another is that infrastructure projects facilitate economic extraction, alienating citizens who are subject to increased government intrusiveness. But both of these explanations are speculative. We leave them for future research to explore.

A4.3 Within-country Analysis Disaggregating by Type of Exposure to Foreign Aid

Tables A16 and A17 report correlations between exposure to foreign aid and attitudes towards government in our rural and urban survey samples, respectively, disaggregating by type of exposure. We distinguish between two ways that individuals might be "exposed" to foreign aid at the micro level: as consumers (those who know about or have used foreign-funded projects) or as labor (those who have worked for a foreign contractor, or that know someone who has). To the extent that these different forms of exposure affect citizens' attitudes, they should do so through distinct mechanisms: for consumers, through the quality and accessibility of services that foreign donors provide, and for labor, through the wages and hiring and management practices of foreign contractors themselves.

In the rural sample, the correlations between exposure to foreign aid and attitudes towards government are almost universally null, regardless of the indicator we use. The only notable exception is that respondents who know about or have used US-funded projects are 13 percentage points more likely to affirm the government's right to tax than those who have not. Respondents who have worked for a US contractor are also 10 percentage points more likely to describe the quality of Liberian democracy as high, though this result is only weakly statistically significant.

In the urban sample as well, knowing about or using US projects is positively correlated with attitudes towards government. Those who know about or have used a US-funded project are 22 percentage points more likely to describe Liberian democracy as high quality, and 10 percentage points less likely to report having ever refused to pay a tax. In contrast, and somewhat surprisingly, those who have worked for a US contractor or know someone who has are 12 percentage *more* likely to report avoiding their taxes, and 13 percentage points more likely to believe it is easy to do so. Still, these workers are no more or less likely to endorse the government's right to tax, suggesting that, if anything, they engage in tax evasion not because they believe it is right, but because they believe (probably correctly) that they are unlikely to get caught.

A5 Survey and Survey Experiment Protocols

A5.1 Random Walk Technique

Survey respondents were sampled using the random walk technique. A team of Liberian enumerators walked the length of each community (in the rural sample) or neighborhood (in the urban sample) and

divided it into roughly equal blocks. They then counted all houses along the "major pathways" separating those blocks, and selected households at even intervals along the major pathways. Respondents were selected at random from among the consenting adult members of each household.

A5.2 Survey Experiment Vignettes

Government Treatment Group

Before we finish I want to tell you a little bit about how public services are provided in Liberia. Public services include things like roads and clinics and electricity. These are things that benefit all of us here in Liberia. Providing public services is one important role for government. The government has provided many public services to Liberians, including roads, bridges, schools, hospitals and clinics, especially during the Ebola epidemic.

The government collects taxes from Liberians to do these things. Government can only provide public services if we pay our taxes. The government uses the taxes it collects to fund expensive public services that can be difficult for communities to provide for themselves, like new roads, new hospitals, and new schools.

But the government can also do some bad things. Sometimes government can spend money wastefully. For example it may pay companies that aren't very good at road building to build our roads. That's one reason our roads can get spoiled so quickly. Or government may hire companies that do not pay fair wages to Liberian workers. They may make them work long hours with little pay. And they may treat them badly or threaten them if they complain. Or government officials or contractors may eat the money.

Overall, as a citizen it is valuable to think about the importance and challenges of building and maintaining public services. And it is valuable to think about what we can do to make sure public services are provided fairly, effectively and efficiently. Now that we have talked about how public services are provided in Liberia, I want to ask you a few last questions.

China Treatment Group

Before we finish I want to tell you a little bit about how public services are provided in Liberia. Public services include things like roads and clinics and electricity. These are things that benefit all of us here in Liberia. Providing public services is one important role for foreign donors and investors.

One country that gives a lot of foreign aid and investment to Liberia is China. China gives many millions of dollars to help provide public services. Chinese companies and organizations also help build and maintain public services themselves. China provides many public services to Liberia, including roads, schools, hospitals and clinics, especially during Ebola. China does not collect taxes from Liberians to do these things. China can provide services even if we don't pay our taxes. China uses its own money to

fund expensive public services that can be difficult for communities to provide for themselves, like new roads, new hospitals, and new schools.

But China can also do some bad things. Sometimes China can spend money wastefully. For example it may pay companies that aren't very good at road building to build our roads. That's one reason our roads can get spoiled so quickly. Or China may hire companies that do not pay fair wages to Liberian workers. They may make them work long hours with little pay. And they may treat them badly or threaten them if they complain. Or Chinese officials or contractors may eat the money.

Overall, as a citizen it is valuable to think about the importance and challenges of building and maintaining public services. And it is valuable to think about what we can do to make sure public services are provided fairly, effectively and efficiently. Now that we have talked about how public services are provided in Liberia, I want to ask you a few last questions.

US Treatment Group

Before we finish I want to tell you a little bit about how public services are provided in Liberia. Public services include things like roads and clinics and electricity. These are things that benefit all of us here in Liberia. Providing public services is one important role for foreign donors and investors.

One country that gives a lot of foreign aid and investment to Liberia is America. America gives many millions of dollars to help provide public services. American companies and organizations also help build and maintain public services themselves. America provides many public services to Liberians, including roads, schools, hospitals and clinics, especially during Ebola. America does not collect taxes from Liberians to do these things. America can provide services even if we don't pay our taxes.

America uses its own money to fund expensive public services that can be difficult for communities to provide for themselves, like new roads, new hospitals, and new schools. But America can also do some bad things. Sometimes America can spend money wastefully. For example it may pay companies that aren't very good at road building to build our roads. That's one reason our roads can get spoiled so quickly. Or America may hire companies that do not pay fair wages to Liberian workers. They may make them work long hours with little pay. And they may treat them badly or threaten them if they complain. Or American officials or contractors may eat the money.

Overall, as a citizen it is valuable to think about the importance and challenges of building and maintaining public services. And it is valuable to think about what we can do to make sure public services are provided fairly, effectively and efficiently. Now that we have talked about how public services are provided in Liberia, I want to ask you a few last questions.

A6 Tax Compliance Game Protocols

A6.1 Logic of the Tax Compliance Game

The tax compliance game is typically used to assess how tax compliance varies with the tax rate and the probability of being audited. In the conventional setup, each participant i is allotted some initial endowment, denoted I_i—her "income." (In most versions of the game, these endowments are very small.) I_i is known to the participant, but not to the tax authority. Each participant then decides how much of their initial endowment to report. Reported income (D_i) is taxed at constant rate t; unreported income ($I_i - D - i$) is not taxed, but is subject to some fixed and exogenous probability of being audited, p.

Audits are usually randomly assigned. Audited pay a fine on any unreported income, as well as any "back taxes." The size of the fine, f, is usually proportional to the degree of under-reporting. Each participant is assumed to choose D_i in order to maximize her expected utility over four parameters—the size of her initial endowment, the tax rate, the probability of being audited, and the size of the fine—as follows:

$$\mathsf{E}[\mathsf{U}] = (1-p)\mathsf{U}(I_i - tD_i) + p\mathsf{U}(tI_i - f(I_i - D_i))$$

In some variations of the game, tax receipts are used to finance a "public good"—usually just some multiple of the sum of all taxes, to be distributed equally among all players (e.g. Alm, Jackson and McKee (1993))—which is then added as a third term in the participant's utility function.

The comparative statics of this model are simple and intuitive. The key result is that D_i decreases as p and/or f decrease. In other words, individuals pay taxes because they fear detection and punishment, and evade when either the probability of detection and/or the severity of punishment is reduced. As Alm (2012) notes, however, taxpayers are far more compliant than the model would predict, given the small probability of detection in most countries, and the small fines that are usually levied. In the real world, "compliance cannot be explained entirely by such purely financial considerations, especially those generated by the level of enforcement" (Alm 2012, 61). If this is true in developed countries, then it is even more true in the developing world, where the probability of being audited is, in many cases, effectively zero.

This observation has catalyzed many variations on the tax compliance game. The conventional setup has been modified to test whether tax compliance changes in response to primes increasing the "saliency of obedience" (Cadsby, Maynes and Trivedi 2006, 345) or inducing feelings of empathy towards other taxpayers (Christian and Alm 2012), or in response to lectures emphasizing the "negative effects of tax evasion and accompanying spread of the underground economy" (Park and Hyun 2003, 677). Implicit (and sometimes explicit) in these modifications is the idea that participants' choice of D_i depends not just on their expected utility, but also on their "moral utility" (Akerlof and Kranton 2010), defined as the loss in utility that participants experience by deviating from their "ideal" behavior.

Our lab-in-the-field experiment draws directly on this intuition. In our setup, the "moral disutility" that participants experience can be conceptualized as the difference between I_i and D_i, weighted by the strength of their perceived obligation to pay taxes. We test whether information about how public goods are financed might alter the strength of that perceived obligation, and thus affect tax compliance. In our modified design, participants select D_i to maximize

$$\mathsf{E}[\mathsf{U}] = (1-p)\mathsf{U}(I_i - tD_i) + p\mathsf{U}(tI_i - f(I_i - D_i)) - \theta_{i,T}(I_i - D_i)$$

where $\theta_{i,T}$ denotes each participant's perceived obligation to pay taxes, which, in turn, varies with the treatment group T to which she was assigned.

A6.2 Tax Compliance Game Script

Consent

My name is [NAME #1], and this is [NAME #2]. We are working as researchers with Parley. Parley is an NGO here in Liberia. Today we are doing small work to understand the way Liberians feel about each other and about different kinds of big people, like government and foreign donors. In this project you will learn about how public services like roads and schools and hospitals are provided in Liberia. For some of you this will be old information that you already know. For some of you it will be new. We hope it will be educative for everyone.

In this project you will also do some activities. In the activities you will earn some money. The most you can earn is 400 LD. Not everyone will earn all 400 LD. The amount you earn will depend on what you do in the activities. These activities are **confidential and anonymous**. We have given each of you an ID number. We will only know you by that number. We will never take your name. I will not know the choices you make, and neither will anybody else in this community or anywhere else. No one will ever know the choices you make. Everything you do in these activities is for you yourself.

Your participation in this project is completely voluntary. The activities will last about 3 or 4 hours. If you know you cannot stay for all 3 or 4 hours, please let us know now so we can find someone to take your place. You can decide to withdraw from the project at any time, but to earn your money you must stay for all 3 or 4 hours. This is very important for us, because all the activities are connected to each other.

If you have any questions or concerns, you can contact our bossman, [NAME], or the executive director of Parley, [NAME]. If you want to contact them I can give you their phone numbers at the end of all the activities.

Before we continue, does anyone have any questions?

If for any reason you don't feel fine about participating, you are free to go now. Before we begin, I beg you **please put your phones on silent**. Also, if you need to use the bathroom, please use it **now**. We

need everyone to stay seated once the activity begins.

Survey

OK, to begin we want to ask you some small small questions about yourself and the community where you live. We will give each of you a copy of this survey. I will read each question out loud. You will follow along with me and fill in the answer that is right for you. We will walk around to help you if you don't understand any question, but **please don't show your answers to your neighbors**. Also, **please answer all the questions**. Don't leave any of them empty.

Please write the name of your home community at the top of the first page, next to where your ID number is. Your home community, that the place you living in now. Everybody please check to make sure you answered all the questions. If you missed any questions, please answer them now.

Instructions

Now I will explain the rules of the activity. I will explain the rules first, then we will practice the activity three times. The best way to understand the rules is to practice. So you will really understand the rules before the activity begins.

Even though there are other people in the room with you, this is an **individual activity**. All your decisions are your own, and the money you make will depend on **your own decisions**. The decisions that other people make will not affect you at all.

To begin the activity, you will pick a small envelope from the big envelope beside you. Inside the small envelope you will find some fake money. We use fake money to make the activities go faster. When the activities are over we will give you real money in exchange for your fake money. So you should treat that fake money like it is real. You have earned this money by taking time out of your day to participate in these activities. The money is not a gift. It is your income for the day.

In every round of the activity you will pick a new envelope. Every envelope will have a different amount of money in it. Some may have 200 LD. Some may have 50 LD. Some may even have no money at all. **Only you will know how much money is in the envelope you pick**. Your income is your secret. You also have beside you a plastic box. This is your Bank Account. Any income you earn, you will put it in your Bank Account. Nobody can see into the plastic box, so nobody can know how much income you earn.

Does anybody have any questions so far?

Just like in real life, you must report the income you earn to the government. You will report your income on this Income Reporting Sheet. You will get a new sheet for every round of the activity. The sheet will be in the same small envelope as the money.

Also just like in real life, you must pay taxes on the income you report. **These taxes are not pretend**. At

the end of the activity we will give all the taxes we collect to the government. So even though the activity is fun, it is not really a game. The tax rate for this activity is 25%. That means that for every 100 LD you report, the government will take 25 LD and you will keep 75 LD for yourself.

Also just like in real life, the government will not know how much income you earn. That means you must decide whether to report **all** of your income, **some** of your income, or **none** of your income. The more income you report, the more the government will take from you in taxes.

Does anybody have any questions so far?

Like I said before, the government will not know how much income you earn. But just like in real life, the government can decide to investigate you to find out. If the government decides to investigate you, it will compare the income you earned to the income you reported. If the government finds out that you earned more than you reported, it will punish you with a fine of **100 LD**. It will also tax you on **all** the income you earned, including the income you didn't report.

Also just like in real life, the government will not investigate everybody. After every round of the activity you will pick a bean from this bag. That bean will tell you if you will be investigated or not. If you pick a **black bean**, that means you will be investigated. If you pick a **white bean**, that means you will not be investigated. There are **18 white beans** in the bag, but only **2 black beans**. That means the chance you will be investigated is 10%, or 1 in 10.

Does anybody have any questions so far?

Each of you has a sheet of paper with some examples to help you understand the rules of the activity. Follow along with me as I read you the examples. In the **first** example we have a participant called Flomo. Flomo earns 100 LD in one round of the activity. In this example Flomo picks a white bean, so the government will not investigate him. That means Flomo will only pay taxes on the income he reports:

- Let's say Flomo reports all 100 LD. Then the government will take 25 LD, and Flomo will keep 75 LD. That's 100 LD minus the 25 LD the government took.

- Now let's say Flomo reports 80 LD. The government will take 20 LD, and Flomo will keep 80 LD. That's 100 LD minus the 20 LD the government took.

- Next let's say Flomo reports 60 LD. The government will take 15 LD, and Flomo will keep 85 LD. That's 100 minus the 15 LD the government took.

- Next let's say Flomo reports 40 LD. The government will take 10 LD, and Flomo will keep 90 LD. That's 100 minus the 10 LD the government took.

- Next let's say Flomo reports 20 LD. The government will take 5 LD, and Flomo will keep 95 LD. That's 100 minus the 5 LD the government took.

- Finally, let's say Flomo reports that he didn't earn anything. The government will not take anything, and Flomo will keep all 100 LD.

Does anybody have any questions about this first example?

In the **second** example we have a participant called Sekou. Sekou earns 180 LD in one round of the activity. In this example Sekou picks a black bean, so the government will investigate him. That means Sekou will pay taxes on **all** his income. He will also pay a fine of 100 LD on any income he doesn't report:

- Let's say Sekou reports all 180 LD. Then the government will take 45 LD, and Sekou will keep 135 LD. That's 180 LD minus the 45 LD the government took. Since Sekou reported all his income, he will not pay any fine.

- Now let's say Sekou reports 140 LD. The government will investigate him and see that he actually earned 180 LD. So the government will still take the same 45 LD in taxes. And since Sekou did not report all his income, he will also pay a fine of 100 LD. So the government will take 145 LD, and Sekou will keep 35 LD.

- Next let's say Sekou reports 80 LD. The government will investigate him and see that he actually earned 180 LD. So the government will still take the same 45 LD in taxes. And since Sekou did not report all his income, he will also pay a fine of 100 LD. So the government will take 145 LD, and Sekou will keep 35 LD.

- Finally, let's say Sekou reports that he didn't earn anything. The government will investigate him and see that he actually earned 180 LD. So the government will still take the same 45 LD in taxes. And since Sekou did not report all his income, he will also pay a fine of 100 LD. So the government will take 145 LD, and Sekou will keep 35 LD.

Does anybody have any questions about this second example?

In the **third** example we have another participant called Rebecca. Rebecca earns 250 LD in one round of the activity. In this example Rebecca picks a white bean, so the government will not investigate her. That means Rebecca will only pay taxes on the income she reports:

- Let's say Rebecca reports all 250 LD on her Income Reporting Sheet. Then the government will take 62.5 LD, and Rebecca will keep 187.5 LD. That's 250 LD minus the 62.5 LD the government took. Now, obviously there is no such thing as 187.5 LD. We will round Rebecca's income up until it can be divided evenly into 5 LD bills. So instead of 187.5 LD, Rebecca will keep 190 LD.

- Now let's say Rebecca reports 200 LD. The government will take 50 LD, and Rebecca will keep 200 LD. That's 250 LD minus the 50 LD the government took.

- Next let's say Rebecca reports 120 LD. The government will take 30 LD, and Rebecca will keep 220 LD. That's 250 minus the 30 LD the government took.

- Next let's say Rebecca reports 100 LD. The government will take 25 LD, and Rebecca will keep 225 LD. That's 250 minus the 25 LD the government took.

- Next let's say Rebecca reports 60 LD. The government will take 15 LD, and Rebecca will keep 235

LD. That's 250 minus the 15 LD the government took.

- Finally, let's say Rebecca reports that she didn't earn anything. The government will not take anything, and Rebecca will keep all 250 LD.

Does anybody have any questions about this **third** example?

These are just examples. Maybe the activity sounds complicated, but really it is simple. In every round of the activity you will pick a new envelope with a new amount of money in it. That is your income. Only you will know how much income you earn.

In every round of the activity you will decide again how much of your income you want to report. And in every round you will pick a new bean to see if the government will investigate you. If you pick a white bean, then the government will not investigate you. That means you will only pay taxes on the income you report. You will not pay taxes on the income you don't report.

If you pick a black bean, the government will investigate you. That means you will pay taxes on all your income, including the income you don't report. You will also pay a fine of 100 LD on any income you don't report. For every 1 black bean there are 9 white beans. So the probability the government will investigate you is 10%, or 1 in 10.

The activity will continue for a number of rounds. After all the rounds are finished, you will trade the fake LD you earned for real LD. We will subtract any taxes you owe. We will also subtract any fines you owe. The income you earn after taxes and fines will be yours to keep.

Does anybody have any questions before we practice?

Practice Rounds

Now we will practice the activity for three rounds to make sure everyone understands. This is just practice. You will not earn any real money in these three rounds. **You can ask questions at any time during this example. If anything is unclear, please just ask and I will explain**.

To begin the first practice round, you will open the envelope that says "PRACTICE." You will pick a small envelope from inside there. You can pick any envelope you want. Now open the envelope and count the money. Once you have counted it, put the money back in the envelope. Now take the Income Reporting Sheet out of the envelope and decide how much of your income you want to report.

Remember, you can report any amount you want. But please do not report **more** income than you actually earned. For example, if you earn 70 LD, you can report 0 LD, 5 LD, 10 LD, 15 LD, 20 LD, all the way up to 50LD, 55 LD, 60 LD, 65 LD, 70 LD. You can report all of it, you can report none of it, or you can report any amount between all and nothing. That one is your secret. But you should not report more than 70 LD if you only earned 70 LD. How much you decide to report, write that number down on the Income Reporting Sheet. Then fold the Income Reporting Sheet in half so we cannot see what you wrote on it.

To see who will be investigated, you will pick a bean from this bag. If you pick a **black bean**, that means you will be investigated. You will put your Income Reporting Sheet back in the envelope. Then you will give the envelope back to us. Then we will give it to the government to see how much income you really earned. If you pick a **white bean**, that means you will **not** be investigated. You will take the income you earned out of the envelope and put it in your Bank Account. Then you will give me your Income Reporting Sheet, and you will put the empty envelope on the floor next to you. Please don't show the other participants which bean you picked. That one is your secret.

So now you have seen how the activity works. Does anyone have any questions?

Now we will practice again. To begin the second practice round, you will again open the envelope that says "PRACTICE." You will pick a small envelope from inside there. Now open the envelope and count the money. Once you have counted it, put the money back in the envelope. Now take the Income Reporting Sheet out of the envelope and decide how much of your income you want to report.

Remember, you can report any amount you want. You can report all of it, you can report none of it, or you can report any amount between all and nothing. That one is your secret. How much you decide to report, write that number down on the Income Reporting Sheet. Then fold the Income Reporting Sheet in half so we cannot see what you wrote on it. Only the government will see how much income you report.

To see who will get investigated, you will pick a bean from this bag. If you pick a **black bean**, that means you will be investigated. You will put your Income Reporting Sheet back in the envelope. Then you will give the envelope back to us. Then we will give it to the government to see how much income you really earned. If you pick a **white bean**, that means you will **not** be investigated. You will take the income you earned out of the envelope and put it in your Bank Account. Then you will give me your Income Reporting Sheet, and you will put the empty envelope on the floor next to you. Remember, please don't show the other participants which bean you picked. That one is your secret.

So now you have seen how the activity works again. Does anyone have any questions?

Now we will practice one last time. To begin the last practice round, you will again open the envelope that says "PRACTICE." You will pick the remaining small envelope from inside there. Now open the envelope and count the money. Once you have counted it, put the money back in the envelope. Now take the Income Reporting Sheet out of the envelope and decide how much of your income you want to report. Remember, you can report any amount you want. How much you decide to report, write that number down on the Income Reporting Sheet. Then fold the Income Reporting Sheet in half so we cannot see what you wrote on it. To see who will get investigated, you will pick a bean from this bag.

So now you have seen how the activity works again. Does anyone have any questions?

Lecture

NB: Please see tax compliance game vignettes in Section A6.3.

Live Rounds

OK, we are finished with our practice rounds, and we have talked about how public services are provided in Liberia. Does anyone have any questions before we go on to the real rounds? Now, we are about to start the real rounds, so you can please take the money out off your bank account and put it into the medium size envelope with the writing "Practice."

Now we will begin the **real rounds**. Remember, you will trade in the fake money you earn for real money at the end of the day, so you should treat the fake money like it is real. To begin the first real round, you will open the large envelope that says "REAL." You will pick a small envelope from inside there. You can pick any envelope you want. Now open the envelope and count the money. Once you have counted it, put the money back in the envelope.

Now take the Income Reporting Sheet out of the envelope and decide how much of your income you want to report. **Remember, you can report any amount you want**. But please do not report **more** income than you actually earned. How much you decide to report, write that number down on the Income Reporting Sheet. Then fold the Income Reporting Sheet in half so we cannot see what you wrote on it.

To see who will get investigated, you will pick a bean from this bag. If you pick a **black bean**, that means you will be investigated. You will put your Income Reporting Sheet back in the envelope. Then you will give the envelope back to us. Then we will give it to the government to see how much income you really earned. If you pick a **white bean**, that means you will **not** be investigated. You will take the income you earned out of the envelope and put it in your Bank Account. Then you will give me your Income Reporting Sheet, and you will put the empty envelope on the floor next to you. Please don't show the other participants which bean you picked. That one is your secret.

Now we will continue the activity for some more rounds. **Please do not pick your next envelope until I tell you to**.

Focus Group

OK, that is the end of the activity. In the other room they are busy calculating how much income you earned today. Before they finish with their calculations, we want to ask you a few questions about what you thought about the activity.

We would like to record the conversation to help us remember what you say. We will record the conversation using this recorder. We will not take your names, and we will not share the recordings with anyone. Everything you say will remain anonymous and confidential. If for any reason you don't feel fine about me recording the conversation, you can please tell me now.

NB: Please see the tax compliance game focus group script in Section A6.4.

Debrief

Now that the activity is finished, we just want to remind you that paying your taxes is very important. The activity today was just to give you an educative experience about taxation and public services in Liberia, and to help us understand better how Liberians like yourself feel about different kinds of big people, like government. The activity was created as an educative experience by researchers at [UNIVERSITIES], from America.

In real life, the government is working hard to provide services to Liberian citizens. Sometimes the government faces challenges, but that is true of governments everywhere. Paying taxes in real life is not a game. It is essential to make sure the government can pay for public services that matter to you.

Do you have any questions about the activity?

Finally, before we go I want to ask if any of you already knew each other from before today. Maybe you were already friends with someone else in the room, or maybe you work together. Please raise your hand if you already knew someone else in the room from before today, and tell me the ID number of that person. **Please don't tell me their name.**

Thank you very much for participating in these activities today. We will give your money now. **Please leave all the materials from the activities in the room here.** We need to reuse them. **Also, please do not tell anyone about these activities.** We will continue this project with other people for a few weeks. Please help us keep the activities secret so other people can participate too.

A6.3 Tax compliance game vignettes

Government Treatment Group

Before we start the real rounds we want to tell you a little bit about how public services are provided in Liberia. Public services include things like roads and clinics and electricity. These are things that benefit all of us here in Liberia.

Let's first imagine two different communities. In the first community, there are no paved roads. Cars cannot pass in the rainy season. The closest hospital is several hours away. There is no electricity. There is no running water. People have to walk a long way to get water from the pump. There are no police or courts, which makes people feel insecure. Rogues run free. Rogues steal, hurt or even kill people.

Now imagine another community. In this second community, all the roads are paved. Cars can pass even in the rain. There is a hospital nearby. The hospital has the best doctors and the best equipment to treat malaria, Ebola and other diseases. There is electricity for everyone. There is running water, so people can get what they need to drink and cook without waiting in line at a pump. The police do good job, and the courts are quick to punish rogues. People feel secure.

I think we can all agree we would prefer to live in the second community, where there are lots of public services. People are healthier from the hospital. Transportation is cheaper and faster. It is safer. Probably there are even more jobs because public services make it easier for companies to operate. Life is better and easier for people in that community. We can all agree we like the imaginary community with all the public services. But how does a real community get to be like that?

It is not easy. In some places, citizens can provide some public services for themselves. Communities can organize to brush the roads, or to build clinics, or to maintain security. But in most places, it is too hard for citizens to provide all these public services on their own. For example, think about paving a road. First you have to shovel a lot of mud. Then you have to fill the road with gravel. And then you have to lay tarmac to pave the road. The process is expensive and slow.

This is why we have government. Providing public services is one important role for government. It is maybe even the most important role. The government has provided many public services to Liberians, including roads, bridges, schools, hospitals and clinics, especially during the Ebola epidemic. The government collects taxes from Liberians to do these things. Government can only provide public services if we pay our taxes. The government uses the taxes it collects to fund expensive public services that can be difficult for communities to provide for themselves, like new roads, new hospitals, and new schools. The government uses everyone's small contribution to make a big contribution. That makes us all better off.

But the government can also do some bad things. Sometimes government can spend money wastefully. For example it may pay companies that aren't very good at road building to build our roads. That's one reason our roads can get spoiled so quickly. Or government may hire companies that do not pay fair wages to Liberian workers. They may make them work long hours with little pay. And they may treat them badly or threaten them if they complain. Or government officials or contractors may eat the money.

Overall, as a citizen it is valuable to think about the importance and challenges of building and maintaining public services. And it is valuable to think about what we can do to make sure public services are provided fairly, effectively and efficiently.

China Treatment Group

Before we start the real rounds we want to tell you a little bit about how public services are provided in Liberia. Public services include things like roads and clinics and electricity. These are things that benefit all of us here in Liberia.

Let's first imagine two different communities. In the first community, there are no paved roads. Cars cannot pass in the rainy season. The closest hospital is several hours away. There is no electricity. There is no running water. People have to walk a long way to get water from the pump. There are no police or courts, which makes people feel insecure. Rogues run free. Rogues steal, hurt or even kill people.

Now imagine another community. In this second community, all the roads are paved. Cars can pass even in the rain. There is a hospital nearby. The hospital has the best doctors and the best equipment to treat

malaria, Ebola and other diseases. There is electricity for everyone. There is running water, so people can get what they need to drink and cook without waiting in line at a pump. The police do good job, and the courts are quick to punish rogues. People feel secure.

I think we can all agree we would prefer to live in the second community, where there are lots of public services. People are healthier from the hospital. Transportation is cheaper and faster. It is safer. Probably there are even more jobs because public services make it easier for companies to operate. Life is better and easier for people in that community. We can all agree we like the imaginary community with all the public services. But how does a real community get to be like that?

It is not easy. In some places, citizens can provide some public services for themselves. Communities can organize to brush the roads, or to build clinics, or to maintain security. But in most places, it is too hard for citizens to provide all these public services on their own. For example, think about paving a road. First you have to shovel a lot of mud. Then you have to fill the road with gravel. And then you have to lay tarmac to pave the road. The process is expensive and slow. This is why we have foreign aid and investment. Providing public services is one important role for foreign donors and investors. It is maybe even the most important role.

One country that gives a lot of foreign aid and investment to Liberia is China. China gives many millions of dollars to help provide public services. Chinese companies and organizations also help build and maintain public services themselves. China has provided many public services to Liberians, including roads, bridges, schools, hospitals and clinics, especially during the Ebola epidemic.

China does not collect taxes from Liberians to do these things. China can provide public services even if we don't pay our taxes. China uses its own money to fund expensive public services that can be difficult for communities to provide for themselves, like new roads, new hospitals, and new schools. China makes a big contribution. That makes us all better off.

But China can also do some bad things. Sometimes China can spend money wastefully. For example it may pay companies that aren't very good at road building to build our roads. That's one reason our roads can get spoiled so quickly. Or China may hire companies that do not pay fair wages to Liberian workers. They may make them work long hours with little pay. And they may treat them badly or threaten them if they complain. Or Chinese officials or contractors may eat the money.

Overall, as a citizen it is valuable to think about the importance and challenges of building and maintaining public services. And it is valuable to think about what we can do to make sure public services are provided fairly, effectively and efficiently.

USA Treatment Group

Before we start the real rounds we want to tell you a little bit about how public services are provided in Liberia. Public services include things like roads and clinics and electricity. These are things that benefit all of us here in Liberia.

Let's first imagine two different communities. In the first community, there are no paved roads. Cars cannot pass in the rainy season. The closest hospital is several hours away. There is no electricity. There is no running water. People have to walk a long way to get water from the pump. There are no police or courts, which makes people feel insecure. Rogues run free. Rogues steal, hurt or even kill people.

Now imagine another community. In this second community, all the roads are paved. Cars can pass even in the rain. There is a hospital nearby. The hospital has the best doctors and the best equipment to treat malaria, Ebola and other diseases. There is electricity for everyone. There is running water, so people can get what they need to drink and cook without waiting in line at a pump. The police do good job, and the courts are quick to punish rogues. People feel secure.

I think we can all agree we would prefer to live in the second community, where there are lots of public services. People are healthier from the hospital. Transportation is cheaper and faster. It is safer. Probably there are even more jobs because public services make it easier for companies to operate. Life is better and easier for people in that community. We can all agree we like the imaginary community with all the public services. But how does a real community get to be like that?

It is not easy. In some places, citizens can provide some public services for themselves. Communities can organize to brush the roads, or to build clinics, or to maintain security. But in most places, it is too hard for citizens to provide all these public services on their own. For example, think about paving a road. First you have to shovel a lot of mud. Then you have to fill the road with gravel. And then you have to lay tarmac to pave the road. The process is expensive and slow.

This is why we have foreign aid and investment. Providing public services is one important role for foreign donors and investors. It is maybe even the most important role.

One country that gives a lot of foreign aid and investment to Liberia is America. America gives many millions of dollars to help provide public services. American companies and organizations also help build and maintain public services themselves. America has provided many public services to Liberians, including roads, bridges, schools, hospitals and clinics, especially during the Ebola epidemic.

America does not collect taxes from Liberians to do these things. America can provide public services even if we don't pay our taxes. America uses its own money to fund expensive public services that can be difficult for communities to provide for themselves, like new roads, new hospitals, and new schools. America makes a big contribution. That makes us all better off.

But America can also do some bad things. Sometimes America can spend money wastefully. For example it may pay companies that aren't very good at road building to build our roads. That's one reason our roads can get spoiled so quickly. Or America may hire companies that do not pay fair wages to Liberian workers. They may make them work long hours with little pay. And they may treat them badly or threaten them if they complain. Or American officials or contractors may eat the money.

Overall, as a citizen it is valuable to think about the importance and challenges of building and maintaining public services. And it is valuable to think about what we can do to make sure public services are provided fairly, effectively and efficiently.

A6.4 Tax Compliance Game Focus Group Script

I will ask a question to start the conversation. Then you should feel free to say exactly what's on your mind. **I want to hear from everybody in the room**. Don't be shy.

1. How did you decide how much of your income to report in each round of the activity?

2. At the beginning of the activity we talked about how public services like roads and schools and hospitals are provided in Liberia. What did you think about that lecture? Did the lecture affect the decisions you made in the activity? Did it make you want to report more of your income or less?

3. During the activity some of you picked a black bean. That means you were investigated. How did that make you feel? Did it make you want to report more of your income or less?

4. When you picked a black bean, that means you were investigated. So the government would find out how much you really earned. Did you feel the government could find out how much you really earned, even if you picked a white bean? Or did you feel your income was your secret, as long as you picked a white bean?

5. You know in Liberia we got lots of foreign donors and investors that provide public services for us. When you think about these various foreign donors and investors, like the Chinese or the Americans, how does that make you feel about your own Liberian government? Does it make you feel better or worse? Why?

6. Many Liberians are struggling and don't have much money to pay taxes. Some people think we should have to pay taxes anyway so the government won't need to take so much from foreign donors and investors. Other people think we should not have to pay taxes because the government already gets so much money from foreign). What do you think? When you think about all the foreign aid and investment we got in Liberia, does that make you feel we should pay more taxes or less taxes?

A6.5 Tax Compliance Game Focus Group Category Codes

Participants' responses to the questions in Section A6.4 were transcribed and coded by the authors and a team of graduate research assistants into the following basic, pre-defined categories:

- Reported all income
- Hid some income
- Vignette increased compliance
- Vignette decreased compliance

- Vignette had no effect on compliance
- Audits increased compliance
- Audits decreased compliance
- Audits had no effect on compliance
- Foreign aid increases tax morale
- Foreign aid decreases tax morale
- Foreign aid has no effect on tax morale
- Believes Liberians should pay more taxes
- Believes Liberians should pay fewer taxes
- Believes Liberians should pay the same taxes

After coding all transcripts, we reviewed each category to identify recurring themes. For purposes of our analysis here, we focus in particular on participants' motivations for tax compliance in the context of the game (and more generally), their reactions to the vignettes, and their beliefs about foreign aid. Importantly, we do not use the focus groups to attempt to test our hypotheses directly; rather, we use them to help us better understand participants' attitudes towards the themes and dynamics of the game.

A6.6 Tax Compliance Game Focus Group Excerpts

Motivations for Tax Compliance and Evasion

Participants who claimed to have reported all of their income generally did so for one of three reasons. The most common was a desire to improve government public goods provision and contribute to economic development. The following excerpts are typical:

- "[Taxation] will help the government create the business-social network we are all yearning for. The roads, the linkages from rural areas to urban areas, and electricity. Education of our youth. We the working should be able to pay income taxes so that we can pay our civil servants and the nation at large" (1.1.N.904).
- "It is important to pay tax as a citizen because it helps the government to construct buildings and help our country build roads from a rural area to an urban area. Especially when it comes to the educational system, we should pay tax" (1.2.N.910).
- "I reported all my money, because through my tax payment is what develops the country" (2.1.C.910).

Other participants expressed a more general desire to be "fair" to the government:

- "What I decide is that I put it all because it is good to be fair to your government. The country is for you, so you have to do your contribution towards your taxes" (1.1.N.904).

- "For me, I decided to put all my income, I guess to be fair to the government" (10.2.U.921).

- "For me, I decided to report all of my income because to cheat the government is not good. I am trying to tell the government that I'm not a cheater and it's not good to cheat" (10.2.U.921).

Only one participant cited fear of being audited as a motivation for tax compliance in the game (1.1.G.904).

Among those who admitted hiding some of their income, all cited necessity as their motivation. Some connected the game to private enterprise, and described tax evasion as necessary to ensure the survival of their business:

- "Maybe my business is you know, getting low. Then maybe if I report short money, it's just that I want to replace my business or I want to buy new things" (1.1.N.904).

- "My position was based on my hustle, on my responsibility for my business, what I do to make money. Based on that, I decided the minimum or maximum fee that I can give the government in taxes" (1.1.N.904).

Others viewed tax compliance as a burden on themselves and their families:

- "In some instances I decided to give all the income I received, but not in all instances. Because if the government always enforces tax on me, I will be left with nothing " (2.2.G.911).

- "If I report all, my family will not get anything" (1.1.U.919).

- "I will report income, [but] I will not give all. I will keep some for my family and myself, and I will give the other one to the government" (10.1.U.919).

Others (a minority) did not see any reason to pay their taxes at all. As one participant put it, "For me, paying tax is very difficult. Because the money I received in my envelop is small, and I think, what is the point if I give?"

Reactions to Vignettes

Most participants answered the second focus group question (probing their reactions to the vignettes) by elaborating on their responses to the first, described above. Of those who reported that the vignettes motivated them to report more of their income, the majority cited their desire to improve government performance. The following excerpts illustrate:

- "According to what I heard from the reading, for the condition of the public services in the area, it

really begged me to pay, to report my income. I know that if I pay the tax on time, the government will be able to buy the public services good" (10.1.U.919).

- "The lecture really encouraged me to pay the tax to the government because if [I] pay tax the government will build good road, good clinic, and good hospital" (10.1.U.919).

- "Based on the lecture, that encouraged me to report my income because I feel if I report more of my income, development will keep going on" (10.2.U.921).

- "From the lecture, it encouraged me to put more money in, because the more I pay my taxes at a good rate, I think any public facility will be more concrete and made more durable" (11.1.C.921).

- "The lecture made me want to report all of my income to enable the government to carry on funding for development" (2.2.G.910).

In two cases participants specifically mentioned a desire to reduce aid dependence in Liberia:

- "I have decided to report all my money to the government because the government always borrows outside our country" (1.1.N.904).

- "We only depend on foreign donors to do major activities for us. The government said they want you to report all of your [income], then tax will be deducted from there. The balance will be used for development within the country. So for this reason, I decided to report all my income for government tax to be deducted from" (1.11.U.921).

No participants reported that the vignette induced them to report *less* of their income.

Perceptions of Foreign Aid

Many participants expressed appreciation for the work that foreign donors do in Liberia (American, Chinese, and otherwise), many credited the government for attracting foreign assistance to the country, and many viewed the availability of foreign aid as motivation to pay more rather than fewer taxes. The following excerpts are representative:

- "More donors are coming in to develop or help with development. So, it encourages me to pay more taxes" (7.1.N.916).

- "I feel nice to see those people [foreign donors] coming in to help us or to come to our aid. So I feel nice to our government for bringing them in" (7.2.N.917).

- "I feel happy when the government comes in with those investors. At least she [the government] will feel she is doing the right thing for the citizens. The citizens too, based on those investors' performance in the country, they will feel their leaders are doing well. [The leaders] might go out and bring foreigners to empower and strengthen and tell them what to do or provide jobs. So I feel

satisfied for that" (10.1.U.919).

- "I feel happy when foreigners are coming into our country. I feel good about my government. I feel good because it is good for foreigners to come to the country to help development" (2.2.G.911).

Some praised more specific strategies that the government has adopted to attract and regulate foreign assistance:

- "It makes me feel better because the government invited two foreign donors, so competition is going on between the two foreign donors" (1.1.N.904).

And others noted that foreign donors pay taxes as well, broadening the country's otherwise narrow tax base:

- "I feel good about our government because the foreigners that are coming here are paying tax to the government. [That] also helps the government to carry on more development" (2.2.G.911).

- "I feel proud and happy for the government. The foreign donors bring development and also pay taxes for the operations they do here. These taxes will be used by the government to bring in development, and those foreign donors will bring development as well. So I feel proud that there are foreign donors in the country" (1.2.N.910).

For many participants, however, the abundance of foreign donors in Liberia merely reveals the government's own limitations:

- "I don't really feel good if I see foreign donors coming to our country, and our government not doing anything. To see [Liberia] depend on the outside world to keep developing our own country. I feel bad about this when I see it going on" (1.11.U.921).

- "It makes me feel bad about my government, because it [development] is something the government needs to do for our own country people" (1.1.C.921).

- "It's like, my government is not able to handle her own country" (1.1.N.904).

Some specifically criticized the terms of the agreements that the Liberian government has reached with foreign entities (1.1.N.904). Others denounced foreign donors for taking jobs and resources that might otherwise benefit Liberians themselves:

- "I think they [foreign donors] are making no improvement because they take the resources and carry them away" (1.1.N.904).

- "It makes me feel bad because our resources are being taken out of the country" (2.1.G.910).

- "If the foreigners are coming in, the jobs that I should be doing, a foreigner will be doing. They carry my benefits, so I feel worse" (2.2.G.911).

- "I feel very frustrated with the way foreign investors come to this country to work. Because, we as Liberians, I strongly believe we have qualified people. The opportunity is there for young Liberians to develop the country, to acquire the same knowledge as the Chinese or Americans are getting. So if the opportunity is provided to go and learn and come back, I strongly believe that we can provide the same services here.... If we bring foreign people, they take money and aid and do not contribute to our development here. But if Liberians are well-educated and can do this, the money will contribute to the development of our country" (11.1.C.921).

- "If investors are coming to the country, they are bringing more workers along with them, and the Liberians have no opportunity for working. We should pay less tax, because we are not working" (2.1.U.910).

Finally, two participants specifically argued that foreign assistance ruptures the social contract between government and citizens, and the social fabric that unites Liberians more generally:

- "I feel worse because the government cater to the foreign donors more than the citizens" (1.1.N.921).

- "I feel bad because we Liberians we do not respect our own citizens; we honor the foreigners more than ourselves" (1.2.G.910).

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Tables and Figures

Table A1: Control variables for within-country analysis

	Rural respondents			Urban respondents			Games participants		
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N
Individual-level controls									
Female	0.44	0.50	675	0.63	0.48	196	0.32	0.47	734
Age	39.82	14.83	674	39.58	15.88	196	26.48	7.92	723
Finished primary school	0.21	0.41	685	0.10	0.30	196	0.13	0.34	734
Finished junior high school	0.22	0.41	685	0.24	0.43	196	0.33	0.47	734
Finished high school	0.25	0.43	685	0.38	0.49	196	0.51	0.50	734
Employed	0.95	0.23	670	0.79	0.41	196	0.54	0.50	734
Muslim	0.01	0.11	685	0.10	0.30	196	0.04	0.19	733
Household quality index	1.17	0.59	685	1.66	0.56	196			
Community-level controls									
Population	1,015.37	616.88	38						
Wealth	0.86	0.41	38						
% literate	0.46	0.13	38						
% with no education	0.63	0.11	38						
% unemployed	0.07	0.11	38						

Table A2: Exposure to foreign aid and perceptions of government for within-country analysis

	Rural respondents			Urban respondents		
	Mean	S.D.	N	Mean	S.D.	N
Exposure to foreign aid						
Knows Chinese projects	0.38	0.49	685	0.74	0.44	196
Knows US projects	0.36	0.48	685	0.49	0.50	196
Used Chinese projects	0.34	0.47	685	0.83	0.38	196
Used US projects	0.33	0.47	685	0.50	0.50	196
Worked for Chinese company	0.02	0.15	685	0.06	0.24	196
Worked for US company	0.05	0.22	685	0.13	0.34	196
Friends of family worked for Chinese company	0.15	0.36	685	0.32	0.47	196
Friends or family worked for US company	0.13	0.34	685	0.27	0.44	196
Perceptions of government						
Perceptions of government (index)	1.68	0.90	685	1.34	0.89	196
Believes democracy is high quality	0.59	0.49	685	0.52	0.50	196
Tax compliance and morale						
Has ever refused to pay taxes	0.08	0.28	652	0.15	0.36	186
Believes government has right to tax	0.78	0.42	685	0.85	0.36	196
Believes it is easy to avoid paying taxes	0.33	0.47	652	0.30	0.46	186
Perceived obligation to pay taxes (for survey experiment)						
Feels obligated even if government makes bad policies	0.51	0.50	649	0.68	0.47	192
Feels obligated even if taxpayers are poor	0.54	0.50	649	0.74	0.44	192
Feels obligated even if government is corrupt	0.63	0.48	649	0.84	0.37	192
Feels obligated even if donors provide most public goods	0.75	0.43	649	0.84	0.37	192

Table A3: Perceptions of foreign donors for within-country analysis

	Rural respondents			Urban respondents			Games participants		
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N
Believes Chinese projects are high quality	0.44	0.50	685	0.54	0.50	196	0.61	0.49	734
Believes US projects are high quality	0.50	0.50	685	0.61	0.49	196	0.77	0.42	734
Does not believe China steals jobs from Liberians	0.26	0.44	685	0.28	0.45	196	0.37	0.48	734
Does not believe US steals jobs from Liberians	0.39	0.49	685	0.45	0.50	196	0.50	0.50	734
Believes China pays well	0.25	0.43	685	0.20	0.40	196	0.28	0.45	734
Believes US pays well	0.42	0.49	685	0.41	0.49	196	0.65	0.48	734
Does not believe China overworks employees	0.13	0.34	685	0.12	0.32	196	0.12	0.33	734
Does not believe US overworks employees	0.36	0.48	685	0.38	0.49	196	0.53	0.50	734
Does not believe China abuses employees	0.26	0.44	685	0.27	0.45	196	0.29	0.46	734
Does not believe US abuses employees	0.43	0.49	685	0.43	0.50	196	0.55	0.50	734
Believes China helped end Ebola crisis	0.50	0.50	685	0.56	0.50	196	0.53	0.50	734
Believes US helped end Ebola crisis	0.78	0.41	685	0.82	0.39	196	0.92	0.27	734

Table A4: Control variables for cross-country analysis

	Round 2	Round 3	Round 4	Round 5	Round 6
Male	0.50	0.50	0.50	0.50	0.50
Age	36.47	36.82	36.56	37.18	37.60
Education	0.84	0.84	0.83	0.82	0.84
Muslim	0.01	0.14	0.19	0.35	0.30
Urban	0.30	0.33	0.32	0.32	0.34
Distance to capital (km)	356.11	361.71	348.33	319.04	317.02
Protest events before first project was planned	4.23	4.20	2.95	2.38	2.39
Lives in president's home region	0.023	0.027	0.025	0.031	0.032

Table A5: Perceptions of government for cross-country analysis

	Round 2	Round 3	Round 4	Round 5	Round 6
Trust in government (index)	2.36	3.07	2.93	2.89	2.70
Believes democracy is high quality	0.58	0.55	0.53	0.54	0.50
Has ever refused to pay taxes				0.08	0.06
Believes government has right to tax	0.70	0.70	0.70	0.74	0.74
Believes it is easy to avoid paying taxes				0.16	0.18

Table A6: Number of Afrobarometer respondents living near Chinese aid projects

Project status	All projects	Infrastructure projects	Other projects
30km buffer			
Planned	21,506	11,202	14,713
Active	1,528	301	1,363
Completed	17,124	8,162	11,974
Control	185,553	200,486	196,437
40km buffer			
Planned	27,031	14,035	19,020
Active	2,100	325	1,919
Completed	21,506	10201	15,097
Control	171,557	190,175	184,757
50km buffer			
Planned	31,932	17,583	21,917
Active	3,066	389	2,829
Completed	25,798	12,221	18,305
Control	157,735	178,910	173,563

Table A7: Proportion of Afrobarometer respondents living near Chinese aid projects

Project sector and status	Round 2	Round 3	Round 4	Round 5	Round 6
30km buffer					
Completed, all	0.02	0.03	0.08	0.10	0.11
Active, all	0.01	0.03	0.02	0.00	0.00
Planned, all	0.14	0.11	0.09	0.08	0.09
Completed, infrastructure	0.01	0.02	0.04	0.05	0.06
Active, infrastructure	0.00	0.00	0.01	0.00	0.00
Planned, infrastructure	0.09	0.08	0.05	0.04	0.04
Completed, other	0.01	0.02	0.06	0.07	0.08
Active, other	0.01	0.03	0.02	0.00	0.00
Planned, other	0.09	0.06	0.06	0.06	0.06
40km buffer					
Completed, all	0.03	0.04	0.11	0.13	0.14
Active, all	0.02	0.03	0.03	0.00	0.00
Planned, all	0.17	0.13	0.113	0.11	0.11
Completed, infrastructure	0.01	0.03	0.06	0.06	0.07
Active, infrastructure	0.00	0.00	0.01	0.00	0.00
Planned, infrastructure	0.12	0.10	0.06	0.05	0.05
Completed, other	0.01	0.02	0.07	0.10	0.10
Active, other	0.02	0.03	0.03	0.00	0.00
Planned, other	0.11	0.08	0.08	0.08	0.08
50km buffer					
Completed, all	0.04	0.06	0.14	0.16	0.17
Active, all	0.03	0.04	0.05	0.01	0.00
Planned, all	0.21	0.17	0.14	0.13	0.14
Completed, infrastructure	0.02	0.04	0.07	0.07	0.08
Active, infrastructure	0.00	0.00	0.01	0.00	0.00
Planned, infrastructure	0.14	0.12	0.08	0.06	0.07
Completed, other	0.03	0.03	0.09	0.12	0.12
Active, other	0.03	0.04	0.04	0.01	0.00
Planned, other	0.14	0.10	0.10	0.10	0.10

Table A8: Balance test for rural survey experiment

	Control	Government	China	US
Female	0.06	0.00	-0.06	-0.00
	(0.04)	(0.05)	(0.04)	(0.04)
Age	0.00	-0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Finished primary school	-0.03	0.08	0.02	-0.07
	(0.05)	(0.05)	(0.04)	(0.05)
Finished junior high school	0.06	0.04	-0.06	-0.04
	(0.05)	(0.06)	(0.04)	(0.05)
Finished high school	0.08	0.06	-0.04	-0.10
	(0.06)	(0.05)	(0.05)	(0.05)*
Employed	0.09	-0.10	-0.05	0.05
	(0.10)	(0.08)	(0.08)	(0.09)
Muslim	0.03	0.11	-0.21	0.07
	(0.13)	(0.16)	(0.15)	(0.15)
Household quality index	0.02	0.01	-0.03	0.00
	(0.03)	(0.03)	(0.03)	(0.03)
Observations	637	637	637	637

Notes: Marginal effects from multinomial logit regressions of treatment assignment in the survey experiment on individual-level controls in the rural sample. Standard errors, clustered by community, in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A9: Balance test for urban survey experiment

	Control	Government	China	US
Female	0.00	0.14	-0.10	-0.04
	(0.07)	(0.05)***	(0.05)**	(0.07)
Age	-0.00	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Finished primary school	0.04	0.07	-0.12	0.01
	(0.14)	(0.15)	(0.13)	(0.08)
Finished junior high school	0.09	0.10	-0.01	-0.18
	(0.09)	(0.10)	(0.11)	(0.08)**
Finished high school	0.04	0.12	-0.12	-0.04
	(0.07)	(0.10)	(0.05)**	(0.04)
Employed	0.00	0.03	-0.06	0.02
	(0.07)	(0.07)	(0.06)	(0.08)
Muslim	-0.03	-0.02	0.08	-0.02
	(0.12)	(0.06)	(0.10)	(0.19)
Household quality index	-0.08	0.16	0.03	-0.11
	(0.06)	(0.07)**	(0.06)	(0.07)*
Observations	189	189	189	189

Notes: Marginal effects from multinomial logit regressions of treatment assignment in the survey experiment on individual-level controls in the urban sample. Standard errors, clustered by community, in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A10: Balance test for tax compliance game

	Control	Government	China	US
Female	0.05	0.00	-0.03	-0.02
	(0.03)	(0.03)	(0.03)	(0.03)
Age	0.01	0.00	-0.00	-0.00
	(0.00)***	(0.00)	(0.00)	(0.00)
Finished primary school	-0.04	-0.05	0.06	0.03
	(0.10)	(0.11)	(0.13)	(0.13)
Finished junior high school	-0.14	0.00	0.09	0.06
	(0.10)	(0.11)	(0.12)	(0.12)
Finished high school	-0.07	-0.04	0.04	0.08
	(0.09)	(0.10)	(0.12)	(0.12)
Employed	-0.03	0.00	-0.03	0.05
	(0.03)	(0.03)	(0.03)	(0.03)
Muslim	0.11	0.13	-0.12	-0.12
	(0.08)	(0.08)	(0.10)	(0.10)
(-1.8ex] Observations	722	722	722	722

Notes: Marginal effects from multinomial logit regressions of treatment assignment in the tax compliance game on individual-level controls. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A11: Correlation between survey- and AidData-based proxies for Chinese aid in rural Liberia

	Index of exposure to Chinese projects	Knows Chinese projects	Used Chinese projects	Worked for Chinese company	Friends or family worked for Chinese company
Proximity to completed	0.10	0.04	0.04	0.00	0.02
	(0.03)***	(0.01)***	(0.01)***	(0.00)	(0.01)**
Proximity to planned	-0.04	-0.02	-0.01	0.00	-0.01
	(0.02)*	(0.01)*	(0.01)*	(0.00)	(0.01)
Completed vs. planned p-value	0.005	0.011	0.002	0.658	0.050
Observations	652	652	652	652	652
Individual-level controls	Y	Y	Y	Y	Y
Community-level controls	Y	Y	Y	Y	Y

Notes: Correlation between self-reported exposure to Chinese aid in rural Liberia and proximity to the nearest Chinese project recorded by AidData. Standard errors, clustered by community, are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A12: Correlation between foreign aid and perceptions of foreign donors in Liberia using survey data

	Perceptions of China (index)	Perceptions of US (index)
Rural respondents		
Index of exposure to Chinese projects	0.78	0.40
	(0.07)***	(0.11)***
Index of exposure to US projects	0.09	0.90
	(0.07)	(0.08)***
Observations	669	669
Individual-level controls	Y	Y
Community-level controls	Y	Y
District FE	Y	Y
Urban respondents		
Index of exposure to Chinese projects	0.61	0.41
	(0.17)***	(0.19)*
Index of exposure to US projects	0.06	0.87
	(0.10)	(0.10)***
Observations	193	193
Individual-level controls	Y	Y
Community-level controls	N	N
District FE	N	N

Notes: Correlation between exposure to foreign aid and perceptions of foreign donors in Liberia. Standard errors, clustered by community (rural sample) or neighborhood (urban sample), are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A13: Correlation between Chinese aid and state legitimacy across Africa using 40km buffer

	Trust in government (index)	Believes democracy is high quality	Has ever refused to pay taxes	Believes government has right to tax	Believes it is easy to avoid paying taxes
Completed	-0.09	-0.02	-0.01	-0.00	-0.00
	(0.03)***	(0.01)***	(0.01)	(0.01)	(0.01)
Active	-0.00	0.03	-0.08	-0.01	-0.05
	(0.07)	(0.02)	(0.01)***	(0.02)	(0.01)***
Planned	-0.02	-0.01	-0.00	0.01	0.01
	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)*
Completed vs. planned p-value	0.078	0.138	0.579	0.398	0.077
Active vs. planned p-value	0.757	0.082	0.000	0.343	0.000
Completed vs. active p-value	0.277	0.023	0.000	0.675	0.005
Observations	158,457	175,234	123,384	180,615	95,058
Individual-level controls	Y	Y	Y	Y	Y
Community-level controls	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y
Buffer	40km	40km	40km	40km	40km

Notes: Correlation between exposure to foreign aid and perceptions of government across 38 African countries. Exposure is operationalized as a dummy for any Chinese projects within a 40km radius. Standard errors, clustered by community, are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A14: Correlation between Chinese aid and state legitimacy across Africa using 50km buffer

	Trust in government (index)	Believes democracy is high quality	Has ever refused to pay taxes	Believes government has right to tax	Believes it is easy to avoid paying taxes
Completed	-0.09	-0.02	-0.00	-0.00	-0.00
	(0.02)***	(0.01)**	(0.01)	(0.01)	(0.01)
Active	0.01	0.04	-0.06	-0.01	-0.03
	(0.06)	(0.02)**	(0.01)***	(0.01)	(0.02)
Planned	0.02	-0.00	0.00	0.01	0.02
	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)**
Completed vs. planned p-value	0.004	0.123	0.625	0.345	0.079
Active vs. planned p-value	0.959	0.020	0.000	0.173	0.016
Completed vs. active p-value	0.139	0.005	0.000	0.470	0.150
Observations	153,854	169,913	119,312	175,137	91,636
Individual-level controls	Y	Y	Y	Y	Y
Community-level controls	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y
Buffer	50km	50km	50km	50km	50km

Notes: Correlation between exposure to foreign aid and perceptions of government across 38 African countries. Exposure is operationalized as a dummy for any Chinese projects within a 50km radius. Standard errors, clustered by community, are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A15: Correlation between Chinese aid and state legitimacy across Africa using 50km buffer, disaggregated by type

	Trust in government (index)	Believes democracy is high quality	Has ever refused to pay taxes	Believes government has right to tax	Believes it is easy to avoid paying taxes
Infrastructure projects					
Completed	-0.09	-0.01	0.02	-0.03	0.02
	(0.03)***	(0.01)	(0.01)***	(0.01)***	(0.01)**
Active	-0.42	-0.06	-0.11	0.06	-0.29
	(0.11)***	(0.04)*	(0.01)***	(0.03)*	(0.02)***
Planned	0.09	0.005	0.01	-0.01	0.03
	(0.03)***	(0.01)	(0.01)	(0.01)	(0.01)***
Other projects					
Completed	0.00	-0.01	-0.01	0.01	-0.01
	(0.03)	(0.01)	(0.01)*	(0.01)	(0.01)
Active	0.01	0.03	-0.05	-0.03	-0.02
	(0.06)	(0.02)**	(0.02)***	(0.01)**	(0.02)
Planned	-0.08	-0.01	-0.00	0.02	0.00
	(0.03)***	(0.01)	(0.01)	(0.01)***	(0.01)
Infrastructure projects					
Completed vs. planned p-value	0.000	0.373	0.248	0.067	0.362
Active vs. planned p-value	0.000	0.066	0.000	0.052	0.000
Completed vs. active p-value	0.003	0.128	0.000	0.006	0.000
Other projects					
Completed vs. planned p-value	0.080	0.874	0.283	0.210	0.286
Active vs. planned p-value	0.150	0.026	0.001	0.000	0.308
Completed vs. active p-value	0.888	0.045	0.013	0.013	0.772
Observations	151,874	167,803	118,683	172,828	91,261
Individual-level controls	Y	Y	Y	Y	Y
Community-level controls	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y
Buffer	50km	50km	50km	50km	50km

Notes: Correlation between exposure to foreign aid and perceptions of government across 38 African countries, disaggregating between infrastructure and other projects. Exposure is operationalized as a dummy for any Chinese projects within a 50km radius. Standard errors, clustered by community, are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A16: Correlation between foreign aid and state legitimacy in rural Liberia using survey data, disaggregating by type of exposure

	Perceptions of government (index)	Believes democracy is high quality	Has ever refused to pay taxes	Believes government has right to tax	Believes it is easy to avoid paying taxes
User of Chinese projects	0.14	-0.04	-0.01	0.02	0.00
	(0.09)	(0.04)	(0.03)	(0.04)	(0.05)
User of US projects	0.03	-0.04	-0.00	0.13	0.00
	(0.11)	(0.05)	(0.03)	(0.04)***	(0.06)
Worker for Chinese contractors	0.08	-0.04	0.01	0.00	0.00
	(0.11)	(0.06)	(0.04)	(0.04)	(0.05)
Worker for US contractors	0.00	0.10	0.02	-0.02	-0.05
	(0.13)	(0.05)*	(0.04)	(0.04)	(0.07)
Observations	669	640	640	659	640
Individual-level controls	Y	Y	Y	Y	Y
Community-level controls	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y

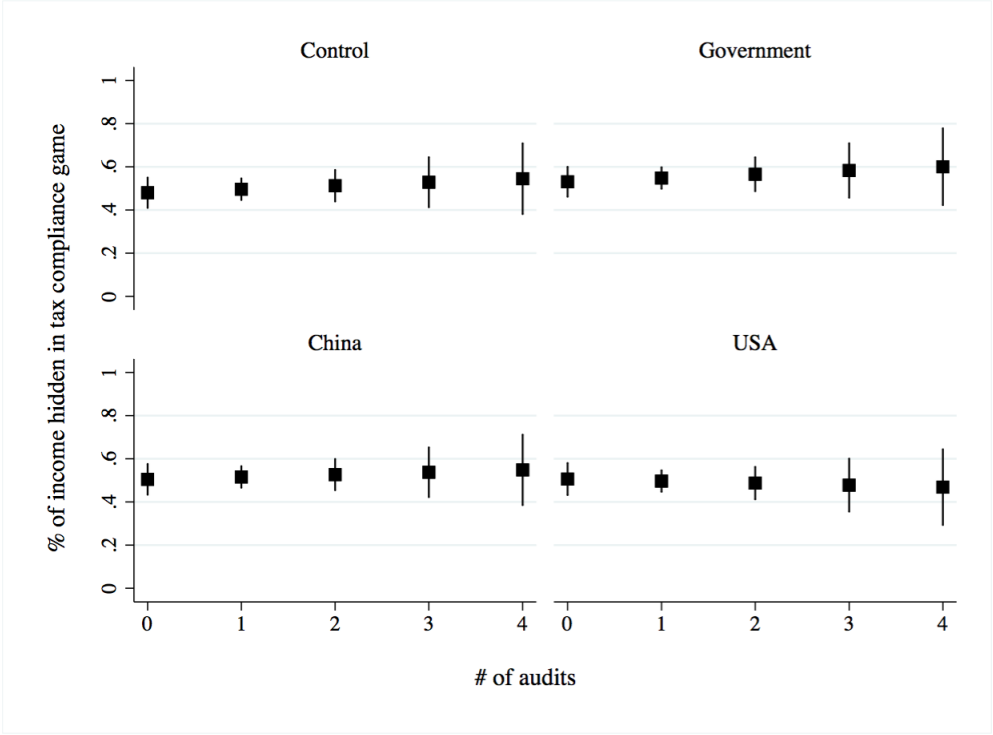
Notes: Correlation between exposure to foreign aid and investment and perceptions of government in Liberia. Standard errors, clustered by community, are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A17: Correlation between foreign aid and state legitimacy in urban Liberia using survey data, disaggregating by type of exposure

	Perceptions of government (index)	Believes democracy is high quality	Has ever refused to pay taxes	Believes government has right to tax	Believes it is easy to avoid paying taxes
User of Chinese projects	-0.03	-0.11	-0.02	0.10	-0.17
	(0.11)	(0.08)	(0.12)	(0.09)	(0.14)
User of US projects	0.04	0.22	-0.10	0.04	-0.07
	(0.15)	(0.05)***	(0.04)**	(0.07)	(0.07)
Worker for Chinese contractors	-0.02	0.09	0.00	0.00	-0.10
	(0.16)	(0.10)	(0.05)	(0.04)	(0.05)*
Worker for US contractors	0.23	-0.09	0.12	-0.04	0.13
	(0.16)	(0.09)	(0.04)**	(0.08)	(0.06)**
Observations	193	193	183	183	183
Individual-level controls	Y	Y	Y	Y	Y
Community-level controls	Y	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y

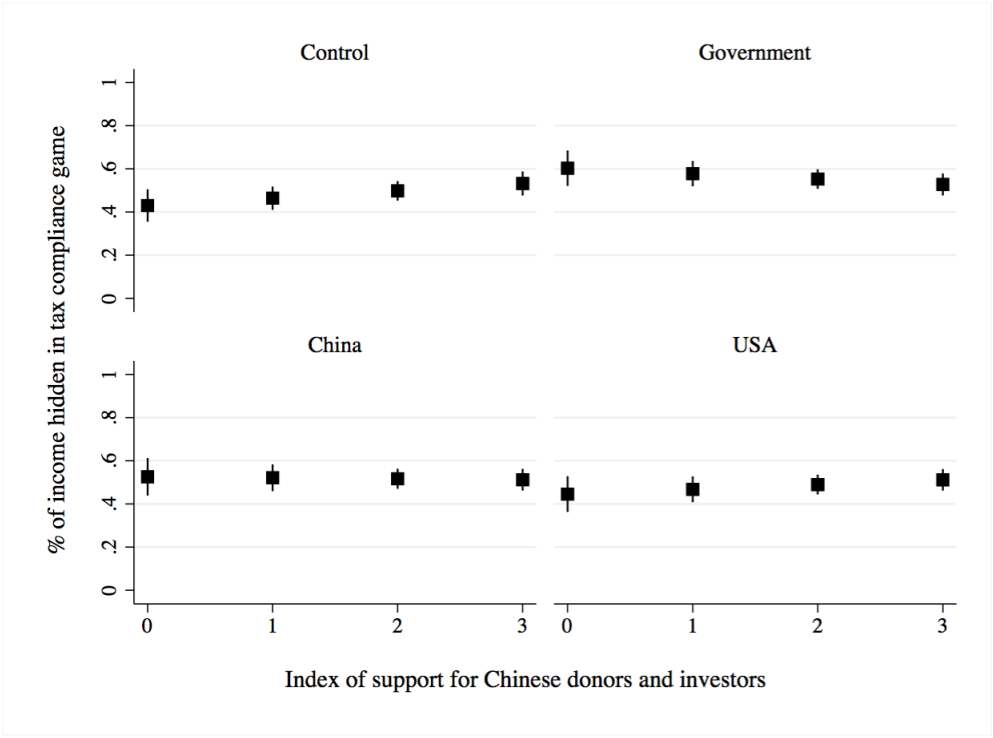
Notes: Correlation between exposure to foreign aid and investment and perceptions of government in Liberia. Standard errors, clustered by neighborhood, are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Figure A1: Heterogeneous treatment effects for tax compliance game by frequency of audits



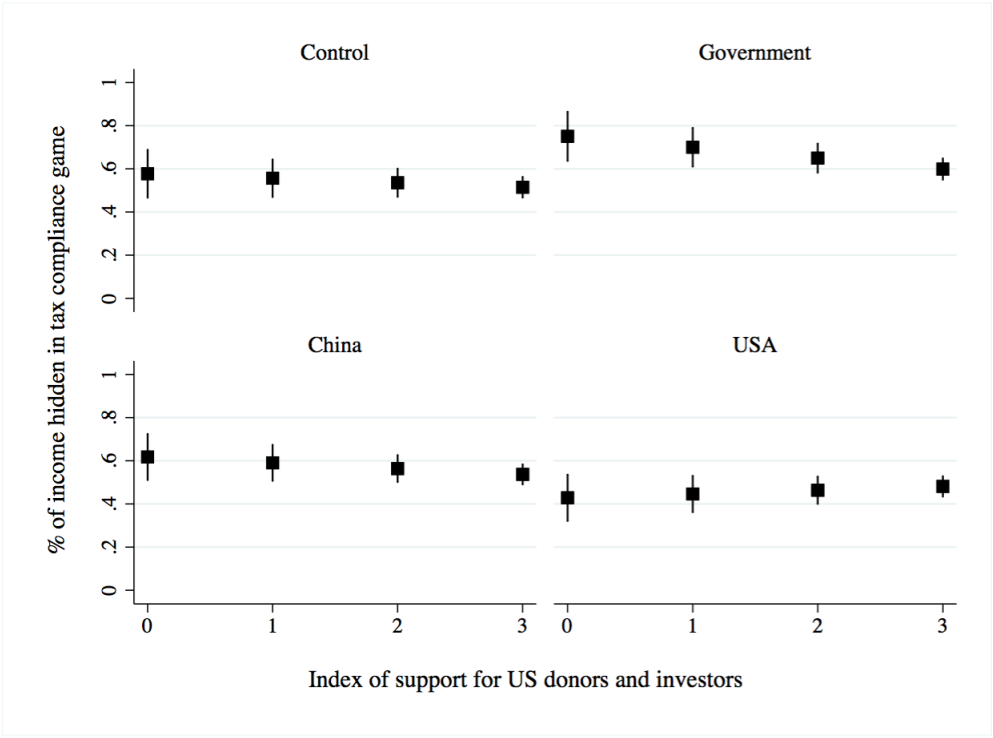
Notes: Heterogeneous treatment effects in tax compliance game by frequency of audits. Squares denote fitted values; lines denote 95% confidence intervals.

Figure A2: Heterogeneous treatment effects in tax compliance game by perceptions of Chinese donors



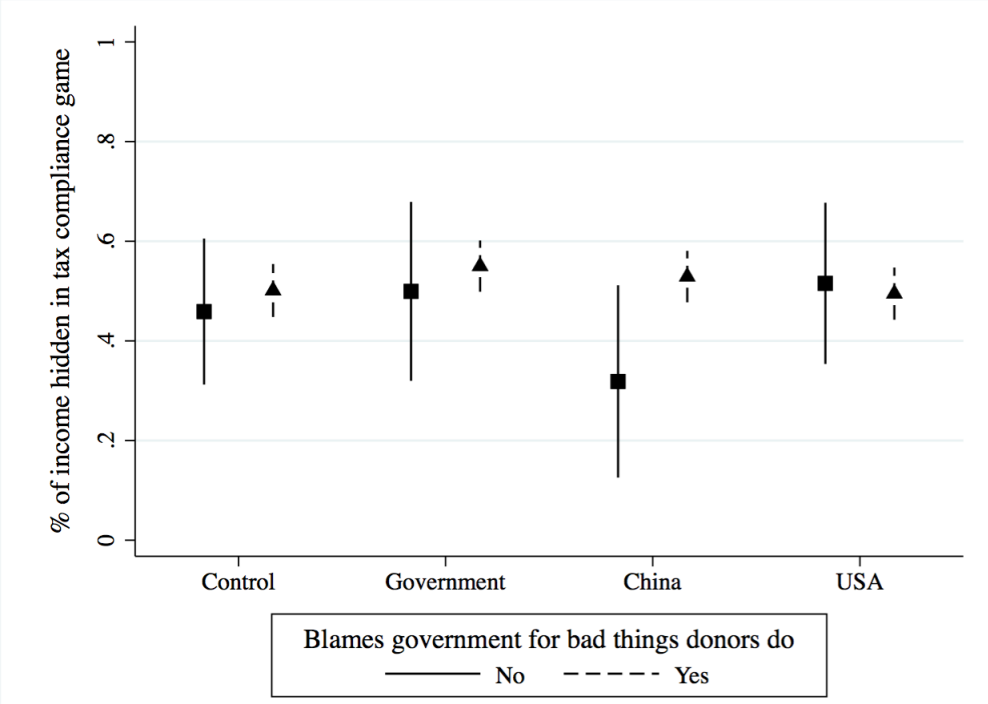
Notes: Heterogeneous treatment effects in tax compliance game by prior perceptions of Chinese donors. Squares denote fitted values; lines denote 95% confidence intervals.

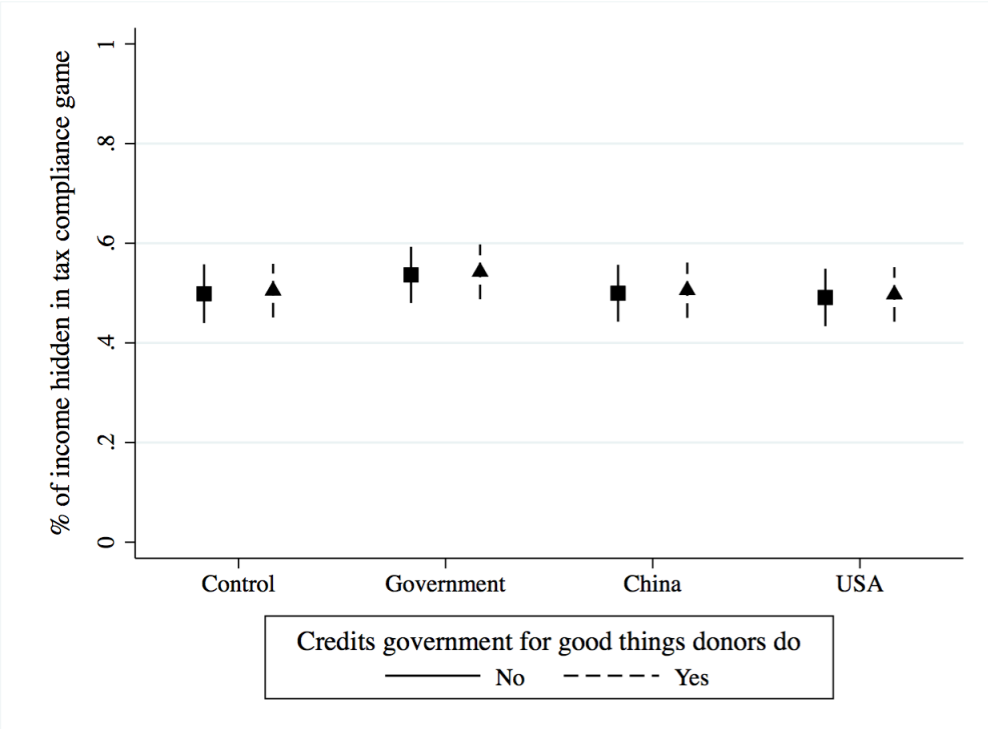
Figure A3: Heterogeneous treatment effects in tax compliance game by perceptions of US donors



Notes: Heterogeneous treatment effects in tax compliance game by prior perceptions of US donors. Squares denote fitted values; lines denote 95% confidence intervals.

Figure A4: Heterogeneous treatment effects in tax compliance game by attribution of credit and blame for actions of foreign donors





Notes: Heterogeneous treatment effects in tax compliance game by attribution of blame (top panel) and credit (bottom panel) for the harmful (top panel) and helpful (bottom panel) actions of foreign donors. Squares and triangles denote fitted values; lines denote 95% confidence intervals.