

## **Appendices to “Coethnicity and Corruption”**

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## A Research Protocol at ESCOM Offices

In this section, we provide additional information about the research protocol for sampling, collecting, and coding data at ESCOM offices in Malawi. More information about the research design of the broader project, including details of research confederate training, randomization procedures, socioeconomic status and power connections treatments, methods for collecting data on the interactions, and variables collected, can be found in the pre-analysis plan and in Robinson and Seim (2018).

### A.1 ESCOM Context

Nine percent of the population in Malawi has access to electricity, one of the lowest electrification rates in the world (United States Government 2013).<sup>1</sup> Urban residents are much more likely to have access to electricity, at connection rates of 32% (United States Government 2013), whereas rural connectivity rates are hovering around 2% (Helema February 26, 2015). In rural areas, not only are citizens unlikely to have residential connections, but schools and health facilities are also rarely connected to the electricity grid, slowing Malawi’s development in multiple ways (McGrath April 8, 2016).

Electricity is provided by the Electricity Supply Company of Malawi (ESCOM), a state-owned enterprise, which is almost entirely generated by hydropower stations on the Shire river. Historically, provision has been unable to meet demand (Tenthani, Kaonga and Kosamu 2013), and the cost of electricity access increased by 124% from mid-2012 to mid-2014 (Chikoko September 22, 2013). In the 2013 Annual Report, ESCOM reported a 96% increase in revenue despite a decrease in total power generated and a failure to meet the target of 25,000 new electricity connections (Electricity Supply Corporation of Malawi 2013). A power sector reform agreement between the Government of Malawi and the Millennium Challenge Corporation went into force in the second half of 2013. This agreement has a total budget of \$351 million and is designed to increase the availability, reliability, and quality of the power supply and expand access to power. Since this project began, Malawi has added 100,000 new connections.

Because the capacity of ESCOM limits the number of people who can be newly connected to the electrical grid on any given day, citizens often pay a bribe to move up in the line of those waiting for a connection. Refusing to pay a bribe can result in a wait time of months or years: presumably including those who were able to speed up the process by paying a bribe, the World Bank estimates that it took 222 days, on average, to receive a connection in Malawi in 2009 (Kaufmann, Kraay and Mastruzzi 2012).

### A.2 ESCOM Offices Sample

At the time of data collection, there was no publicly available register of ESCOM offices in Malawi. Instead, we generated a list of ESCOM offices based on discussions with the research confederates, spaced along the driving route we had set for the broader project. The list we generated included 10 offices located along the route. We assumed that one or two offices would have been shut down and a few more would have been established. There were actually more offices than we anticipated, as confederates encountered 15 during data collection.

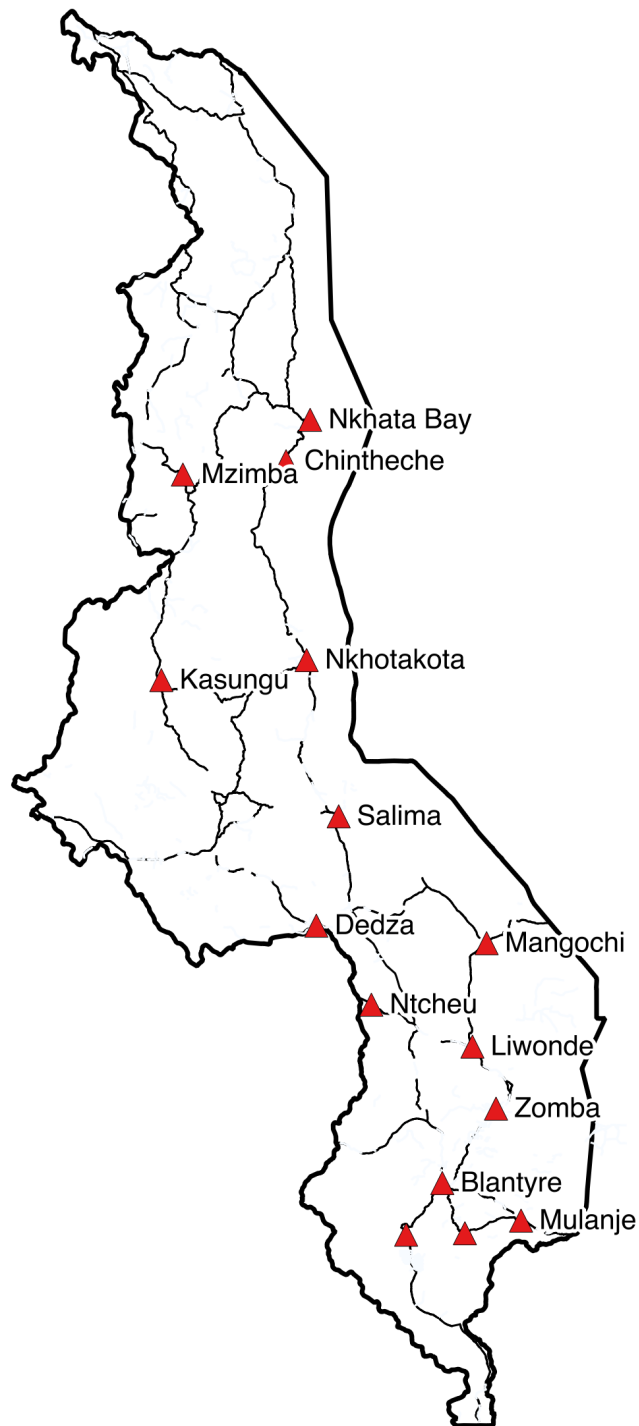
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<sup>1</sup>The statistics in this section represent the status of electricity in Malawi around the time of data collection, in mid-2014.

Although all research confederates drove along all segments of the route (and therefore passed by all ESCOM offices along the route), each confederate was randomly assigned to drive the route in a different order and to leave for data collection each day at a different time. This means that the order in which confederates encountered ESCOM offices was random, as was the day of data collection. Unfortunately, due to delays in obtaining ethical approval, data collection start was pushed back, and the five days of data collection ended up including a Saturday and a Sunday, even though ESCOM offices are closed for a half day on Saturday and all day on Sundays. Due to budgetary limitations and pre-payment on the rental vehicles, we could not shift or extend the data collection window further. These complications significantly limited the sample of ESCOM office observations.

In total, over five days of data collection, the six research confederates visited between 6 and 13 ESCOM offices each, for a total of 52 observations. The variation in the number of ESCOM offices visited per confederate reflects the fact that some of the confederates visited the densely populated Southern Region, where most ESCOM offices are located, during the weekend, whereas others visited it on the weekdays. The locations of the ESCOM offices visited are presented in Figure A.1.

**Figure A.1: Location of ESCOM offices visited by confederates.**



*Note:* ESCOM offices are shown as red diamonds.

### A.3 Confederate-Official Interactions at ESCOM Offices

Our research confederates requested a total of 52 new electricity connections at ESCOM offices. In each interaction, the researcher entered the ESCOM office and waited in a queue for the next available official. The confederate requested the forms to obtain a connection for residential electricity on a nearby plot, stating that he needed the connection very quickly. In some cases, the first official encountered would pass the confederate on to a colleague to discuss details.

At this point, ESCOM officials could either offer to expedite the request or not. If an official asked for a small payment, token of gratification, or extra money, the confederate waited for the official to suggest an amount and engaged in limited negotiation. In the cases where a bribe was solicited, the confederate said that he would gather and return with the money, and then left the office. If no bribe was solicited, the confederate pretended to be missing a key piece of information (e.g., plot number) and said he would return later. Regardless of whether or not a bribe was solicited, the confederate did not return with funds and completed forms, an outcome that is not unusual, given the amount of money that is often requested. Confederates recorded data on the ESCOM official with whom they discussed the process and payment.

This pattern of interaction – collecting the connection forms, negotiating the bribe, leaving to collect the money, and then returning with the fee, bribe money, and completed forms – is a very common pattern of interaction with ESCOM officials.<sup>2</sup> Because setting up a new connection often involves negotiation, this is a task that most property owners – even wealthy and powerful ones – typically handle themselves. With fewer than twenty ESCOM offices in the country, ESCOM officials cannot know all of the citizens in the catchment area of their office. Finally, as Malawi has no universal address system, detailed location information is not required in the early stages of requesting a new connection. In brief, we believe that the interactions we examined in the ESCOM context were representative of most citizens’ experiences in requesting a new electricity connection, and were also not out of the ordinary for the ESCOM officials.

When an ESCOM official interacts with a customer seeking expedited service, he or she must decide whether to refuse and offer only “normal” service, offer faster service without a bribe, or to solicit a bribe in exchange for expedited service. The prevalence of each of these three possible outcomes within our sample is depicted in Figure B.1. In 19 (37%) interactions, the “customer” was told that there was no way to speed up the connection process. When an ESCOM official did signal that an expedited service was possible, which occurred in 33 (63%) interactions, a bribe was solicited in only 17 cases; the rest of the time, such preferential service was promised without demanding a bribe (31% of all interactions). For those offered expedited service, the average bribe solicited was 12,367 MWK (including those for whom no bribe was asked, and thus the bribe was 0 MWK), while the average amount was 25,560 MWK for all those asked for a bribe (see Figure B.2). Table B.1 provides summary statistics, and Tables B.2, B.3, and B.4 provide covariate balance information across our three treatments of socioeconomic status, political connections, and coethnicity.

Note that the nature of the experiment required that confederates knew their treatment status, which could introduce bias through a form of confederate-driven experimenter demand. However, we believe that this is mitigated by several factors. First, while the treatments that changed daily (socioeconomic status and political connections) would be very salient to confederates, this was less

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<sup>2</sup>Refusing to pay a bribe can result in a wait time of months or even years; presumably *including* those who paid a bribe, it took 222 days, on average, to receive a new connection in 2009 (Kaufmann, Kraay and Mastruzzi 2012).

true for coethnicity because the confederates only recorded the ESCOM official’s ethnicity (not shared ethnicity, which we coded after the fact), along with many other characteristics of the official. Second, confederates were incentivized to avoid paying bribes if at all possible – consistent with real world citizen behavior – and we anticipate that this was more motivating than producing the “right” results for the experimenters. Third, we believe that our recruitment and training process produced a highly professional group of confederates who did their best to maintain the integrity of the research design.

#### **A.4 Coding Ethnicity of ESCOM Officials**

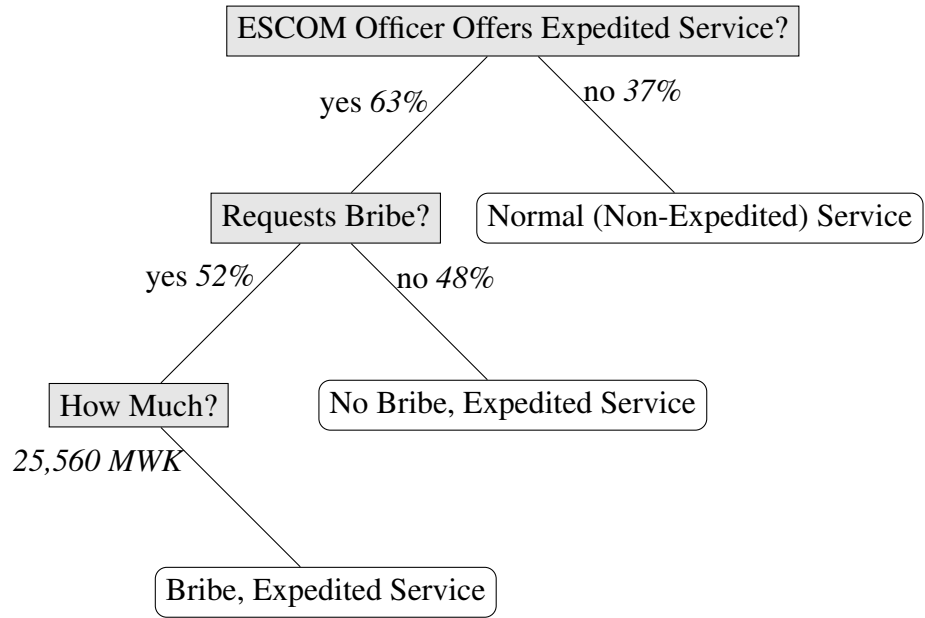
We used the confederate coding of ethnicity and region of origin to construct a dichotomous indicator of ethnic match between the public official and confederate. In our analysis, we use a region-based coding of coethnicity, because regional identities within Malawi have been the most salient form of ethnic identity (Ferree and Horowitz 2010; Posner 2004). We also coded coethnicity based on tribe. However, given subject identifiability and data confidentiality concerns, confederates only classified public officials as members of one of the three largest groups (Chewa, Tumbuka, or Yao) or as belonging to an “other” tribe. We were therefore able to code tribe-based coethnicity for only half of the confederates.

Confederates coded the ethnicity and region of origin for each ESCOM official with whom they interacted using surname, accent, appearance, and information shared by the official. This coding of ethnicity is likely to be measured with considerable error, as “ethnic visibility” varies across individuals and groups (Robinson 2018), and officials explicitly mentioned their own ethnicity in only 12% of all interactions. Indeed, our confederates reported low confidence in their judgment of police officers’ ethnicities in 15% of interactions. Government officials also inevitably perceived the ethnicity of our confederates with some degree of error. Nevertheless, we anticipate that ethnicity was reasonably identifiable in the personal interactions that constitute our experiment, because both physical appearance and speech are observable in face-to-face interactions, and these pieces of information increase ethnic identifiability considerably (Habyarimana et al. 2009).

We incorporate this uncertainty into robustness tests in Appendix C below (Table C.3).

**B Summary Statistics**

**Figure B.1: Decision Tree for ESCOM Officials**



Source: Data based on 52 different ESCOM interactions.

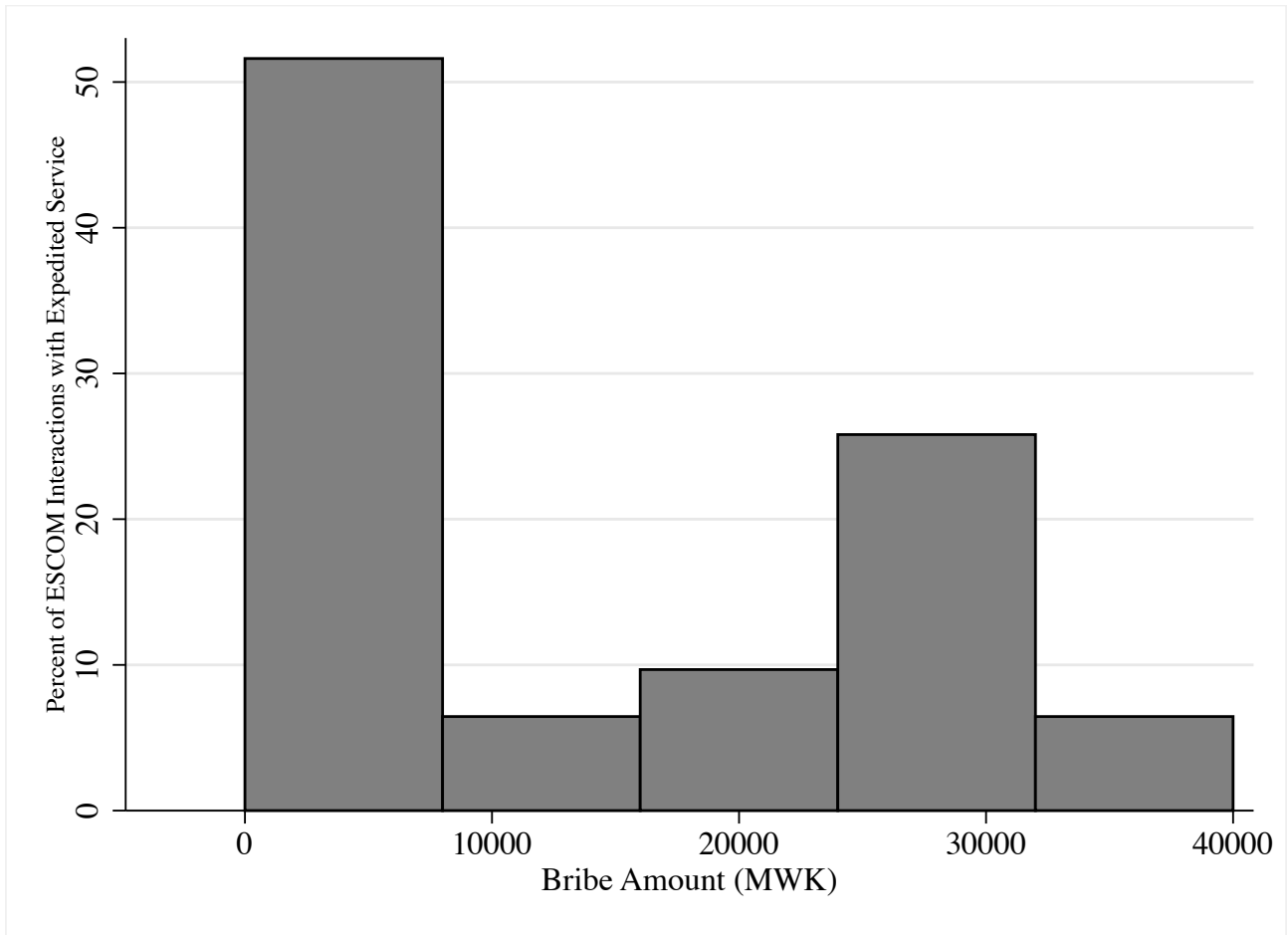


**Table B.1: Summary Statistics for ESCOM Context**

|                                | <b>Mean</b> | <b>SD</b> | <b>Min</b> | <b>Max</b> | <b>N</b> |
|--------------------------------|-------------|-----------|------------|------------|----------|
| <i>Treatments</i>              |             |           |            |            |          |
| High SES                       | 0.40        | 0.50      | 0.00       | 1.00       | 52       |
| Political Connections          | 0.50        | 0.50      | 0.00       | 1.00       | 52       |
| Coethnicity                    | 0.31        | 0.47      | 0.00       | 1.00       | 52       |
| <i>Outcomes</i>                |             |           |            |            |          |
| Expedited Service Offered      | 0.31        | 0.47      | 0.00       | 1.00       | 52       |
| Bribe Solicited                | 0.33        | 0.47      | 0.00       | 1.00       | 52       |
| Bribe Amount (MWK)             | 12367.74    | 13825.08  | 0.00       | 40000.00   | 31       |
| Total Cost of Connection (MWK) | 7668.00     | 12401.34  | 0.00       | 40000.00   | 50       |
| <i>Control Variables</i>       |             |           |            |            |          |
| No. of Officials               | 2.48        | 1.95      | 1.00       | 9.00       | 52       |
| Other Customers Present        | 0.23        | 0.43      | 0.00       | 1.00       | 52       |

*Note:* Expedited service was promised in 33 out of 52 cases, but a bribe was solicited in only 17 of the 33 cases in which expedited service was promised. In two of the 17 cases in which a bribe solicited, the ESCOM official was not willing to name an amount, so data on the bribe amount is missing for those two observations. Therefore, while bribes were solicited in only 17 (33%) of interactions, we consider a bribe to be zero if expedited service was promised in the absence of a bribe, so we have 31 observations of bribe amount. The total cost of the connection was zero for both confederates who were told expedited service was not possible and for those promised expedited service in the absence of a bribe, and was equal to the bribe amount for those solicited for a bribe. This amount is missing for the two interactions in which the official refused to give an amount.

**Figure B.2: Bribe Amounts in ESCOM Context**



*Source:* Data on the size of bribes solicited during the 31 observations in which the confederate was promised expedited service and the official agreed to a specific amount.

**Table B.2: Covariate Balance by Socioeconomic Status Assignment**

|                         | Low SES | High SES | Difference |
|-------------------------|---------|----------|------------|
| No. of Officials        | 2.16    | 2.95     | -0.79      |
| Other Customers Present | 0.19    | 0.29     | -0.09      |

Statistical differences determined by a two-tailed *t*-test.  
 \*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$

**Table B.3: Covariate Balance by Political Connections Assignment**

|                         | Not Connected | Connected | Difference |
|-------------------------|---------------|-----------|------------|
| No. of Officials        | 2.85          | 2.12      | 0.73       |
| Other Customers Present | 0.38          | 0.08      | 0.31***    |

Statistical differences determined by a two-tailed *t*-test.  
 \*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$

**Table B.4: Covariate Balance by Coethnicity Assignment**

|                         | Not Coethnic | Coethnic | Difference |
|-------------------------|--------------|----------|------------|
| No. of Officials        | 2.53         | 2.38     | 0.15       |
| Other Customers Present | 0.25         | 0.19     | 0.06       |

Statistical differences determined by a two-tailed *t*-test.  
 \*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$

## C Alternative Specifications and Robustness Tests

This section reports results of alternative specifications. First, our main results treat the outcome as categorical with three possibilities: normal, non-expedited service, expedited service with a bribe, or expedited service without a bribe. Table C.1 presents the results of logistic regressions with dichotomized versions of the dependent variable. Model 1 of Table C.1 reports results for the outcome of expedited service (with or without a bribe) versus normal, non-expedited service. Model 2 of Table C.1 reports results for the outcome of expedited service with a bribe versus normal, non-expedited service or expedited service without a bribe.

Second, we attempt to account for any confederate effects. Unfortunately, as shown in Table ??, coethnicity with officials varied within confederate for only four confederates. Two confederates, one from the center and one from the south, only interacted with non-coethnic officials, and these two confederates had the fewest interactions overall ( $n = 6$ ). Given this, a model with confederate fixed effects, presented in Model 1 of Table C.2 is very sparse, as it is effectively estimated off four confederates and just 40 observations. As a result, while the coefficients remain positive, the effect of coethnicity on the outcome of interactions with officials is no longer statistically significant at conventional levels. To try to account for potential confederate effects while maintaining information from the full sample, we also fit a model with confederate random effects. This model, reported as Model 2 in Table C.2 shows estimates on par with our main results. Together, these results suggest that, while our estimates are sometimes imprecise and limited by sample size, the effect of coethnicity on corruption outcomes is unlikely to be driven specific confederates.

Third, we deal with uncertainty in the coding of officials’ ethnicity in two ways.<sup>3</sup> We first reestimate our main model excluding the 15% of interactions in which the confederate was not confident in his coding of the official’s ethnicity. The results, presented in Model 1 of Table C.3, are stronger than our main results, which include all observations. In an alternative approach, we use the full sample but include an indicator of no confidence and interact it with the indicator of a coethnic interaction. The interaction effect, shown in Model 2 of Table C.3, is large and negative. Thus, both these estimation strategies suggest that the effects of coethnicity are weaker for interactions in which the confederate was uncertain about the ethnicity of the public official (and, presumably, the official was also less certain in assessing the coethnicity of the confederate).

Finally, in the manuscript, we present the results from a multinomial regression. However, with a small sample size, the standard errors computed in the estimation of a multinomial logit may be unreliable because of the model’s reliance on asymptotic properties of the data’s distribution. Thus, we also present a number of non-parametric and semi-parametric alternatives. First, Table C.4 uses randomization inference to approximate exact  $p$ -values for all treatment coefficients based on 10,000 permutations of the treatment assignments (Keele, McConnaughy and White 2012). This randomization inference assigns the three treatments to units independently, and tests the sharp null of no effect for any unit. Second, Table C.5 presents estimates obtained from a multinomial model using generalized maximum entropy, which avoids strong parametric assumptions and is thus well suited to small samples (Golan, Judge and Perloff 1996). Third, in Table C.6, we report the posterior means and 95% highest posterior density intervals of a Bayesian multinomial logit model. Bayesian methods do not rely on assumptions about the asymptotic properties of the sample or the sampling distributions of the parameters, which makes a Bayesian approach particularly appealing with small samples (McNeish 2016). Figures C.1 and C.2 show density plots of the posterior means on the left and trace plots on

<sup>3</sup>We thank an anonymous reviewer for suggesting these specifications.

the right.<sup>4</sup> In Figures C.3 and C.4, we examine the sensitivity of the 90% highest posterior density interval to the variance parameter for the prior for the coefficients, finding consistent positive effects for coethnicity on both bribery exposure and expedited service. Only when we place a strong prior probability of no effect – setting the prior variance around the coefficients around or below two – do HPD intervals overlap zero. These various approaches, which use different strategies to overcome the limitations of a small sample size, align with the findings reported in Table ??; political connections facilitate free, expedited service, and coethnicity reduces the likelihood of receiving normal service.

**Table C.1: Coethnicity and dichotomous indicators of corruption outcomes in ESCOM interactions.**

|                         | (1)<br>Corrupt Expedition | (2)<br>Bribe Solicited |
|-------------------------|---------------------------|------------------------|
| Coethnicity             | 1.55*<br>(0.82)           | 0.90<br>(0.70)         |
| High SES                | -0.63<br>(0.68)           | -0.91<br>(0.74)        |
| Political Connections   | 1.10*<br>(0.62)           | -1.13<br>(0.75)        |
| No. of Officials        | 0.62<br>(0.41)            | 0.45*<br>(0.19)        |
| Other Customers Present | -0.12<br>(0.96)           | -1.34<br>(1.04)        |
| Constant                | -1.50<br>(0.98)           | -1.07<br>(0.71)        |
| Observations            | 52                        | 52                     |

Models are estimated using logistic regression.

The dependent variable in Model 1 is an indicator of receiving expedited service with or without a bribe versus receiving normal service. The dependent variable in Model 2 is an indicator of bribe solicitation versus normal service or expedited service without a bribe.

Robust standard errors are reported in parentheses.

\* $p < 0.10$

<sup>4</sup>The Gelman and Rubin diagnostic produced values below 1.1 for each chain, consistent with Markov chain convergence, a conclusion that comports with visual inspection of the trace plots.

**Table C.2: Coethnicity and corruption outcomes in ESCOM interactions, adjusting for confederate effects.**

|                         | (1)             |                 | (2)             |                 |
|-------------------------|-----------------|-----------------|-----------------|-----------------|
|                         | Bribe           | Expedited       | Bribe           | Expedited       |
| Coethnicity             | 0.83<br>(0.73)  | 1.10<br>(0.93)  | 1.45*<br>(0.60) | 1.57*<br>(0.59) |
| High SES                | -0.77<br>(0.87) | 0.04<br>(0.99)  | -0.90<br>(0.92) | -0.21<br>(0.86) |
| Political Connections   | -0.23<br>(2.32) | 1.85<br>(1.60)  | -0.08<br>(1.43) | 2.48<br>(1.57)  |
| No. of Officials        | 0.56<br>(0.61)  | 0.34<br>(0.79)  | 0.69<br>(0.51)  | 0.43<br>(0.69)  |
| Other Customers Present | -2.16<br>(2.25) | -0.50<br>(0.88) | -1.30<br>(1.85) | 0.56<br>(0.63)  |
| Constant                |                 |                 | -1.44<br>(1.30) | -3.27<br>(2.70) |
| Observations            | 52              |                 | 52              |                 |

Model 1 is estimated using multinomial logit with confederate fixed-effects. Model 2 is estimated using a multi-level multinomial logit with confederate random-effects.

Models 1 and 2 treat normal service (non-expedited, no bribe) as the reference category.

Robust standard errors are reported in parentheses.

\* $p < 0.10$

**Table C.3: Coethnicity and corruption outcomes in ESCOM interactions, accounting for confidence in the coding of ethnicity.**

|                                   | (1)    |           | (2)     |           |
|-----------------------------------|--------|-----------|---------|-----------|
|                                   | Bribe  | Expedited | Bribe   | Expedited |
| Coethnicity                       | 3.58*  | 3.65*     | 2.13*   | 2.16*     |
|                                   | (1.35) | (1.24)    | (0.96)  | (0.96)    |
| No Confidence in Ethnicity Coding |        |           | -0.34   | 0.71      |
|                                   |        |           | (1.97)  | (1.50)    |
| Coethnicity × No Confidence       |        |           | -17.09* | -16.05*   |
|                                   |        |           | (2.29)  | (2.12)    |
| High SES                          | -1.41  | -0.73     | -1.36   | -0.71     |
|                                   | (1.38) | (1.17)    | (0.91)  | (0.89)    |
| Political Connections             | 1.31   | 3.94*     | -0.30   | 2.32*     |
|                                   | (1.13) | (1.19)    | (0.81)  | (0.93)    |
| No. of Officials                  | 2.45*  | 2.33*     | 0.79*   | 0.57      |
|                                   | (1.16) | (1.14)    | (0.42)  | (0.42)    |
| Other Customers Present           | -6.25* | -5.22     | -1.41   | 0.48      |
|                                   | (3.10) | (3.19)    | (1.50)  | (1.33)    |
| Constant                          | -4.89* | -6.87*    | -1.48   | -3.22*    |
|                                   | (1.41) | (1.50)    | (1.10)  | (1.24)    |
| Observations                      | 44     |           | 52      |           |

Model 1 excludes interactions in which the confederate was not confident in the ethnicity coding.

Models are estimated using multinomial logit, with normal service (non-expedited, no bribe) as the reference category.

Robust standard errors are reported in parentheses.

\*  $p < 0.10$

**Table C.4: Coethnicity and corruption outcomes in ESCOM interactions, using randomized inference to approximate exact p-values.**

|                       | (1)             |                 | (2)             |                 |
|-----------------------|-----------------|-----------------|-----------------|-----------------|
|                       | Bribe           | Expedited       | Bribe           | Expedited       |
| Coethnicity           | 1.33<br>[0.11]  | 1.33<br>[0.12]  | 1.61<br>[0.09]  | 1.59<br>[0.08]  |
| High SES              | -0.39<br>[0.63] | -0.02<br>[0.98] | -1.05<br>[0.25] | -0.54<br>[0.53] |
| Political Connections | -0.18<br>[0.81] | 1.53<br>[0.07]  | -0.07<br>[0.93] | 2.44<br>[0.01]  |
| Controls Included     | No              |                 | Yes             |                 |
| Observations          | 52              |                 | 52              |                 |

Models 1 and 2 are estimated using multinomial logit, with normal service (non-expedited, no bribe) as the reference category.

Control variables include the number of officials present, and an indicator for the presence of other customers.

Approximated exact p-values using randomization inference under the sharp null hypothesis of no effect for any unit are reported in brackets based on 10,000 simulations.



**Table C.5: Coethnicity and corruption outcomes in ESCOM interactions, generalized maximum entropy model.**

|                         | (1)             |                  | (2)              |                  |
|-------------------------|-----------------|------------------|------------------|------------------|
|                         | Bribe           | Expedited        | Bribe            | Expedited        |
| Coethnicity             | 1.17<br>(0.75)  | 1.16<br>(0.80)   | 1.38*<br>(0.80)  | 1.34<br>(0.85)   |
| High SES                | -0.37<br>(0.68) | -0.01<br>(0.71)  | -0.91<br>(0.77)  | -0.41<br>(0.76)  |
| Political Connections   | -0.22<br>(0.67) | 1.40*<br>(0.72)  | -0.18<br>(0.78)  | 2.07*<br>(0.88)  |
| No. of Officials        |                 |                  | 0.62*<br>(0.24)  | 0.41*<br>(0.24)  |
| Other Customers Present |                 |                  | -1.04<br>(1.03)  | 0.74<br>(0.98)   |
| Constant                | -0.19<br>(0.55) | -1.27*<br>(0.67) | -1.35*<br>(0.80) | -2.64*<br>(1.01) |
| Observations            | 52              |                  | 52               |                  |

Models 1 and 2 are estimated using GME multinomial logit, with normal service (non-expedited, no bribe) as the reference category.

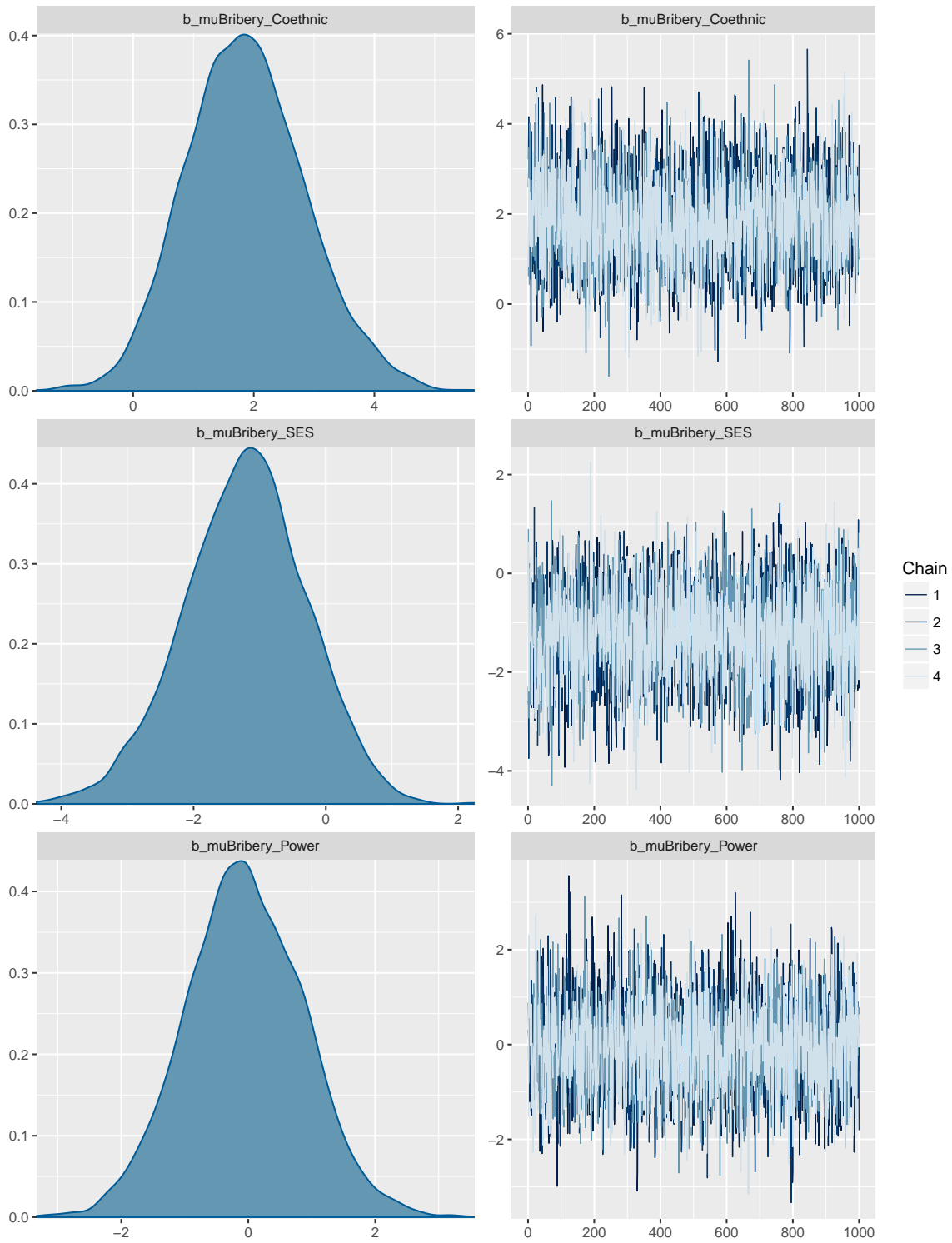
Standard errors are reported in parentheses. \* $p < 0.10$

**Table C.6: ESCOM Results (Bayesian Multinomial Logit Model)**

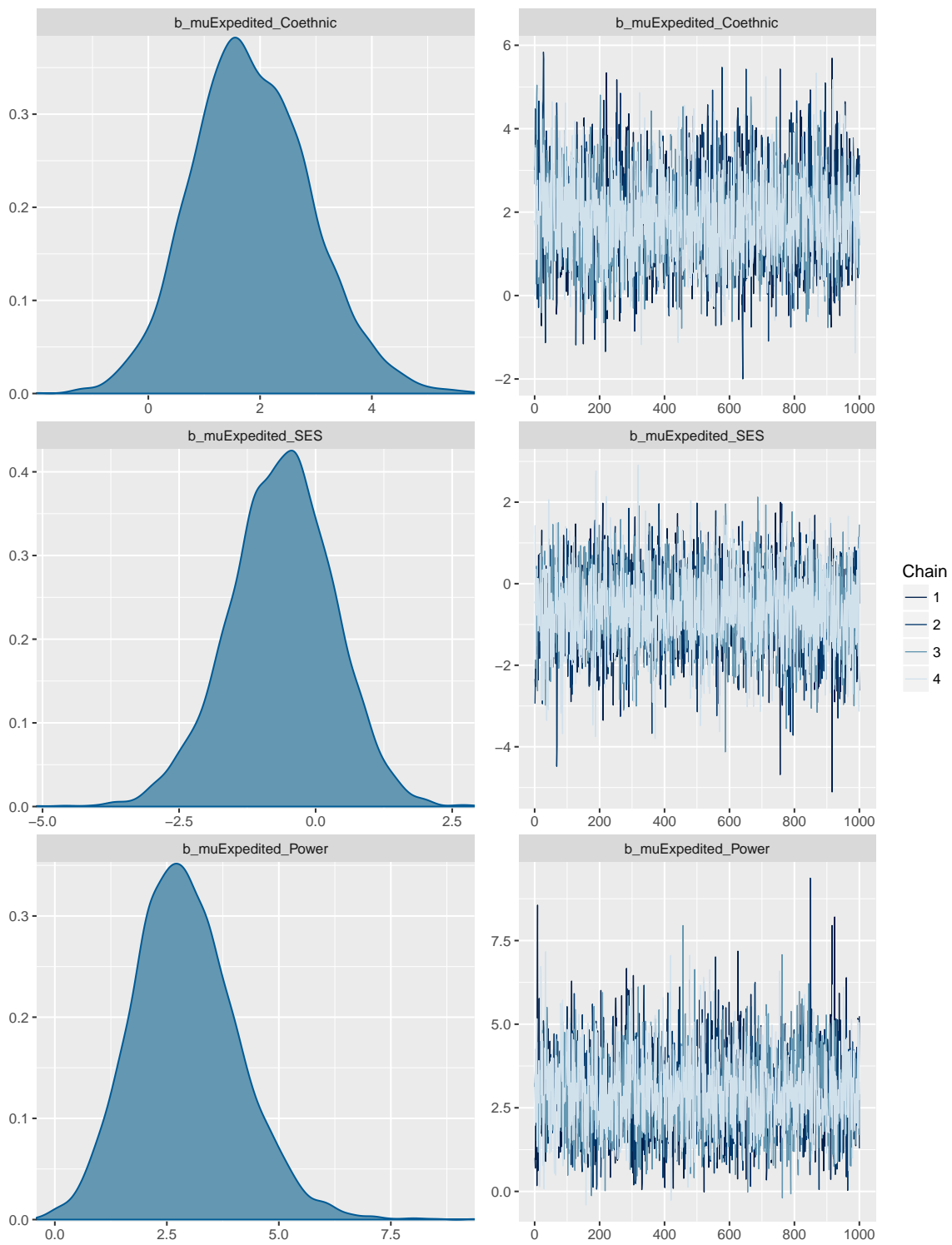
|                         | (1)                     | (2)                     |
|-------------------------|-------------------------|-------------------------|
|                         | I(Bribe)                | I(Expedited)            |
| High SES                | -1.22<br>(-3.10, 0.53)  | -0.63<br>(-2.57, 1.17)  |
| Political Connections   | -0.05<br>(-1.87, 1.77)  | 2.92<br>(0.86, 5.38)    |
| Coethnicity             | 1.87<br>(0.04, 3.93)    | 1.86<br>(-0.09, 4.04)   |
| No. of Officials        | 0.94<br>(0.35, 1.66)    | 0.68<br>(0.08, 1.40)    |
| Other Customers Present | -1.34<br>(-3.77, 0.98)  | 1.07<br>(-1.24, 3.59)   |
| Constant                | -2.07<br>(-4.14, -0.22) | -3.89<br>(-6.70, -1.37) |
| Observations            | 52                      |                         |

Model estimated using Bayesian multinomial logit model.  
 Posterior means reported with 95% highest posterior density  
 intervals in parentheses.

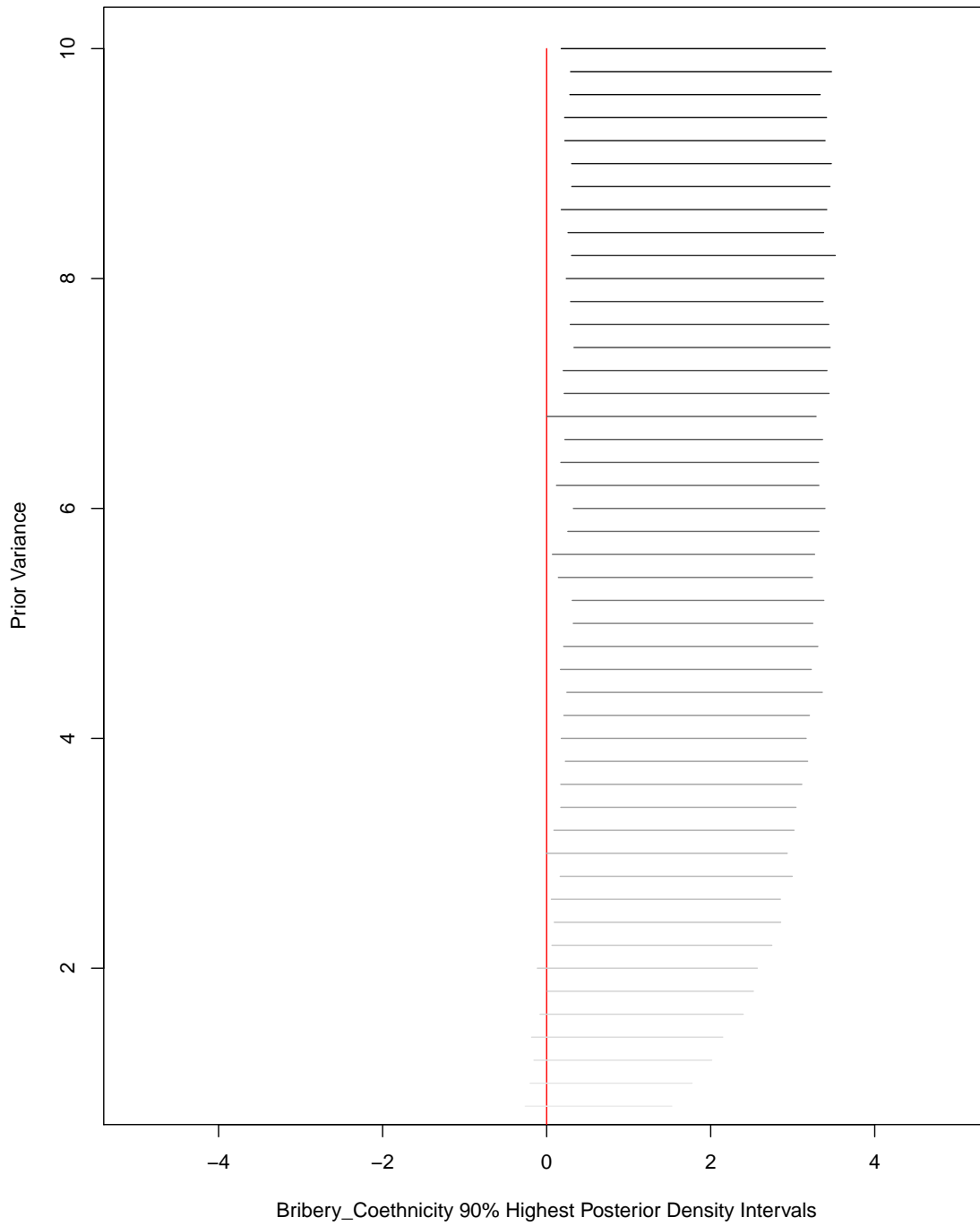
**Figure C.1: ESCOM Results (Bayesian Multinomial Logit Model, Effects on Bribery)**



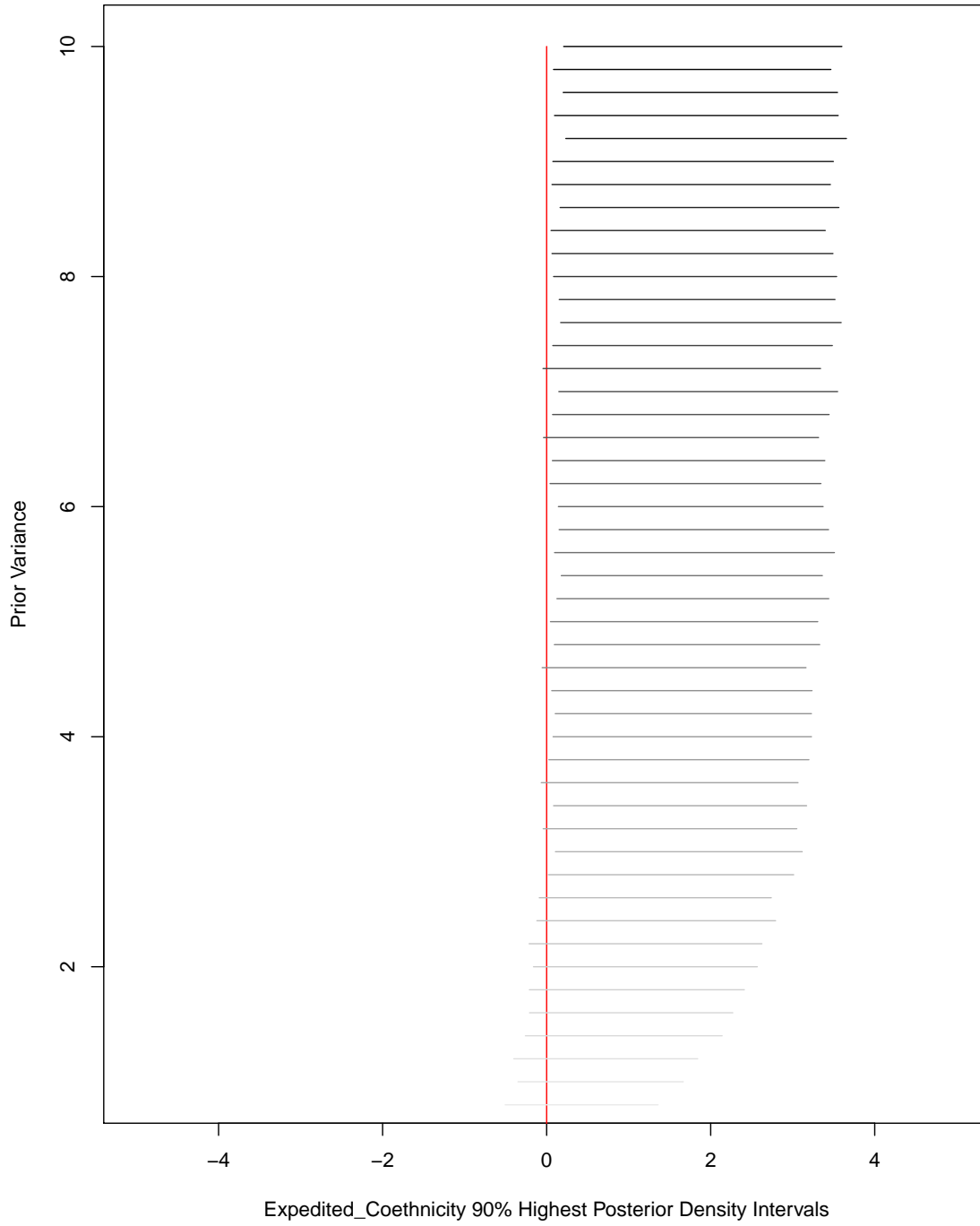
**Figure C.2: ESCOM Results (Bayesian Multinomial Logit Model, Effects on Expedited Service)**



**Figure C.3: ESCOM Results (Prior Sensitivity Analysis for Effect of Coethnicity on Bribery)**



**Figure C.4: ESCOM Results (Prior Sensitivity Analysis for Effect of Coethnicity on Expedited Service)**



## D Context Comparison

In our larger project, research confederates interacted with two types of Malawian government officials: ESCOM officials and the traffic police. Results for the traffic police component of the study are reported in Robinson and Seim (2018). Both ESCOM and the traffic police are perceived to be highly corrupt, but there are a number of differences between them that could affect both the prevalence of corruption overall and how officials condition their corruption on citizen characteristics. For example, ESCOM offices are part of a more centralized and institutionalized structure than the traffic police, which potentially gives ESCOM officials less discretion than traffic police to solicit bribes. In this section, we qualitatively compare findings across the two contexts and then discuss one proposed explanation for the observed differences. The proposed explanation we present here is informed by the discussion regarding context comparison we put forth in the pre-analysis plan as well as by discussions with Malawian officials regarding the importance of risk in shaping corruption choices by officials. We intend this explanation as speculative only, and encourage future research comparing corruption patterns across contexts.

Overall, corruption was much more common among traffic police than ESCOM officials. While traffic police solicited a bribe in 90% of interactions with confederates stopped, which constitutes 45% of interactions overall (see Robinson and Seim 2018), ESCOM officials did so in only 33% of interactions. In addition, standard procedures were followed in 37% of ESCOM interactions (i.e., expedited service was not offered), while the standard procedure of issuing a citation occurred in only in 3% of police interactions. In terms of strategic targeting, we found similar effects of socioeconomic status and political connections in the two contexts. In particular, socioeconomic status appeared to have little direct effect, while political connections offered protection from corruption and access to preferential treatment. However, the preferential treatment for politically connected individuals at ESCOM was not limited to the poor, as it was for interactions with traffic police. The most dramatic difference in treatment effects across the two contexts was the effect of coethnicity; it increased the likelihood of bribe solicitation and expedited service in the ESCOM setting, but had no effect on interactions with the traffic police.

While our research design does not allow us to isolate the mechanisms driving these contextual differences, the lower rates of corruption and the greater importance of shared ethnicity among ESCOM officials suggest that they may be at higher risk of retaliation from engaging in corruption, and therefore that they do so less often and prefer to share this risk with coethnics. We speculate that ESCOM officials face greater risks than traffic police officers for three reasons.

First, as we discuss in the pre-analysis plan, greater centralization and institutionalization expose ESCOM officials to more oversight than traffic police officers, since corruption is potentially traceable to particular individuals and their superiors within the ESCOM bureaucracy. ESCOM is highly centralized, and such centralization is typically associated with lower rates of corruption (Fisman and Gatti 2002; Prud’Homme 1995; Shah 2006). ESCOM falls under both the Ministries of Energy and Finance, and has a centralized chain of accountability to the central government. It is also highly institutionalized; officials are appointed to a specific office with standard business hours, and contact information for ESCOM offices is widely available. In contrast, the traffic police are more decentralized and less institutionalized. The chief of police is autonomous from government ministries, and personnel decisions are made independently at lower levels. There are no publicly available records of police operations, officers rarely wear nametags, and traffic officers do not have set schedules or locations. Corruption is therefore less traceable in the traffic police, and thus bears less risk.

Second, ESCOM officials face a higher risk of retribution than traffic police, because ESCOM

bribes are extracted in exchange for providing a government service that is legally available to all Malawians, whereas traffic police bribes are taken in exchange for being let out of a citation that would typically cost more than the bribe. This difference in the perceived fairness of the situation can make citizens more willing to take personal risks in order to punish corrupt officials at ESCOM. Citizens can report corruption to the Anti-Corruption Bureau, the media, or district council officials. While not all of these reports result in investigation, let alone formal sanctions, a corruption investigation in Malawi can be sufficiently invasive and career damaging that officials take care to avoid being reported (Zimmerman 2014). Retribution from higher-level officials is also more likely at ESCOM. Due to the traceability and perceived unfairness of corruption at ESCOM, high-level officials often take care to distance themselves from it by harshly punishing those involved – for example by demoting them, transferring them to a less desirable area, or reporting them for formal investigation and punishment (Zimmerman 2014). However, corruption is also prevalent at high levels of government in Malawi; dramatic public action may be taken against lower-level corruption to divert scrutiny from the higher levels. Senior officials also often punish lower-level officials not for soliciting bribes in general, but for soliciting them from powerful individuals who seek retribution.

Third, ESCOM officials face a greater risk of bribe payers renegeing. Few citizens arrive at ESCOM with bribe money in hand. It is a negotiation tactic to claim that the funds are not available yet, and citizens often have to raise the money through their network; if they cannot, they may simply not return to complete the electricity connection. Sometimes a citizen will return but will give the money to another officer. Therefore ESCOM officials bear the risks of corruption today but receive the benefits in the future, if ever. In contrast, traffic police officers receive bribes on the spot. Thus a citizen’s perceived trustworthiness should be more important for ESCOM officials than for police officers when deciding whether to target them.

Our finding that there are different patterns of corruption across different contexts suggests that officials may develop nuanced, context-specific strategies regarding who to target for corruption. This is a promising avenue for future research.



**E ODK Fields for ESCOM Office Visits**

For each ESCOM office that a research assistant visits, he recorded the following information: **NOTE: Fill out the form about the officer who was the decision-maker about whether or not you paid, and if so, how much it was.**

1. GPS coordinates of data entry **NOTE: If you cannot get GPS on your phone for an observation, try to drive where you can get it. If you still cannot get GPS on your phone, then write down the approximate location of the roadblock in your exercise book.**
2. Enumerator (allow only one answer)
  - (a) RA 1
  - (b) RA 2
  - (c) RA 3
  - (d) RA 4
  - (e) RA 5
  - (f) RA 6
3. Day of Data Collection (allow only one answer) **NOTE: Never write down the date and time of the interactions. Use only “day 1, roadblock 2” notation.**
  - (a) 1
  - (b) 2
  - (c) 3
  - (d) 4
  - (e) 5
  - (f) 6+
4. SES (allow only one answer)
  - (a) Rich
  - (b) Poor
5. Power (allow only one answer)
  - (a) Connected
  - (b) Not Connected
6. Number of ESCOM Officials Present (open field) **NOTE: Do not be obvious as you collect this information.**
7. Did any ESCOM official in the office recognize you personally? (allow only one answer) **NOTE: Only answer “yes” to this question if an officer recognized you, but not if you recognized an officer and he didn’t seem to see you.**
  - (a) Yes
  - (b) No
  - (c) DK
8. Did the ESCOM official ask your profession, with you answering according to the script? (allow only one answer) **NOTE: Only answer “yes” to this question if the officer asked you.**
  - (a) Yes - SKIP TO NUMBER 10
  - (b) No
9. Did you manage to mention your profession according to the script? (allow only one answer) **NOTE: If the officer did not ask you your profession, then please try to bring this up in conversation naturally.**
  - (a) Yes
  - (b) No

10. When you said you were in a rush to get the connection and asked what you could do, did the ESCOM official mention paying something extra on top of the official cost of the connection? (allow only one answer) **NOTE: “Initiation” occurs whenever an officer indicates that he is open to corruption, whether through what he says or what he does.**
  - (a) Yes
  - (b) No - SKIP TO NUMBER 14
11. Was the bribe solicited/mentioned before or after you said your profession? (allow only one answer)
  - (a) Before
  - (b) After
12. Amount of bribe solicited: (open field) - SKIP TO NUMBER 15
13. Was the bribe solicited in order to access the forms or to get a connection? (allow only one answer)
  - (a) To Get Forms
  - (b) To Get a Connection
14. Did the ESCOM official promise to expedite your service in the absence of a bribe? (allow only one answer)
  - (a) Yes
  - (b) No
15. Languages Used in Interaction *Check all that were used.*
  - (a) Chichewa
  - (b) Tumbuka
  - (c) Yao
  - (d) English
  - (e) Other (allow for open field entry here)
16. Was there any discussion about ethnicity or the place that you or the ESCOM official comes from? (allow only one answer) **NOTE: Any discussion about ethnicity or the place you come from should be casual and natural.**
  - (a) Yes
  - (b) No
17. What was the ESCOM official’s ethnicity? (allow only one answer) **NOTE: A longer version of this question would ask, “If you had to guess, what do you think the officer’s tribe is?”**
  - (a) Chewa
  - (b) Tumbuka
  - (c) Yao
  - (d) Other
18. How confident are you in rating the ESCOM official’s ethnicity? (allow only one answer)
  - (a) Not Confident At All
  - (b) Uncertain
  - (c) Confident
  - (d) High Confident
19. What information did you use in determining the ESCOM official’s ethnicity?
  - (a) Language or accent
  - (b) Surname
  - (c) Region of interaction
  - (d) Region from which ESCOM official comes

- (e) Specific place from which ESCOM official comes
  - (f) Appearance
  - (g) Was told directly
20. What region is the ESCOM official from? (allow only one answer)
- (a) North
  - (b) Center
  - (c) South
21. How confident are you in rating the ESCOM official’s home region? (allow only one answer)
- (a) Not Confident At All
  - (b) Uncertain
  - (c) Confident
  - (d) High Confident
22. What information did you use in determining the ESCOM official’s home region?
- (a) Language or accent
  - (b) Surname
  - (c) Region of interaction
  - (d) Region from which ESCOM official comes
  - (e) Specific place from which ESCOM official comes
  - (f) Appearance
  - (g) Was told directly
23. Were there any deviations from the prescribed information in what you said? (allow only one answer) *Either things you were supposed to say but were not able, or things you were not supposed to say but had to.* **NOTE: Also answer “yes” if anything weird or unusual happens.**
- (a) Yes
  - (b) No - SKIP TO NUMBER 25
24. What were the deviations? (open field)
25. Did the ESCOM official raise his or her voice or get angry at any point? (allow only one answer)  
**NOTE: Answer “yes” to this question if you feel threatened.**
- (a) Yes
  - (b) No
26. Do you think the ESCOM official believed your performance (SES and connections as assigned) or was he suspicious? **NOTE: If you think the officer is suspicious for any reason, including if he or she has noticed that six people have come through and done the same thing over the last few days, be sure you note this in question 23**
- (a) Believed Completely
  - (b) A Bit Suspicious
  - (c) Did Not Believe At All
27. Did you show the letters about the research or tell the officer about the research in any way? (allow only one answer) **NOTE: If you ever answer “yes” to this question, notify us immediately.**
- (a) Yes
  - (b) No
28. Were any other ESCOM officials listening to or watching the interaction? (allow only one answer)
- (a) Yes

- (b) No - SKIP TO NUMBER 30
- 29. Was a superior ESCOM official (a boss) listening to or watching the interaction? (allow only one answer)
  - (a) Yes
  - (b) No
- 30. Did the ESCOM official consult with any other ESCOM officials? (allow only one answer)
  - (a) Yes
  - (b) No - SKIP TO NUMBER 32
- 31. Was one of the ESCOM officials who was consulted a superior ESCOM official (a boss)? (allow only one answer)
  - (a) Yes
  - (b) No
- 32. Were any other customers listening to or watching the interaction? (allow only one answer)
  - (a) Yes
  - (b) No
- 33. Approximately how many minutes was the interaction? (allow only one answer)
  - (a) Under 2 Minutes
  - (b) 2-5 Minutes
  - (c) 5-10 Minutes
  - (d) More than 10 Minutes

## F Pre-Analysis Plan

A pre-analysis plan for the study - including both the traffic police and the ESCOM contexts - was filed with Open Science Framework prior to data collection.<sup>5</sup> The pre-analysis plan guides our analysis, but we deviate from that plan in the following ways. First, while our pre-analysis plan pre-specified parametric sample comparison tests, we utilize non-parametric alternatives given our relatively small sample size. Second, we model the ESCOM interaction as a multinomial outcome. Third, our pre-analysis plan specified the inclusion of some variables directly affected by treatments, which potentially introduces post-treatment bias: our current specification includes only pre-treatment covariates.<sup>6</sup> In Table F.1, we report the results of the ESCOM analyses as they were specified in the pre-analysis plan that was filed in June 2014, with two exceptions: 1) As discussed above, we refrain from including post-treatment control variables; and 2) We do not have enough observations to include research assistant fixed-effects in the ESCOM analyses.

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<sup>5</sup>Available at <http://goo.gl/OQRbWW>.

<sup>6</sup>Tables B.2, B.3, and B.4 show the covariate balance across treatments.

**Table F.1: Results of Pre-Specified Analyses in ESCOM Context**

| <b>PAP H#</b>        | <b>Context</b> | <b>Hypothesis</b>   | <b>DV</b>              | <b>IV</b>             | <b>Sample</b>          | <b>Bivariate</b>  | <b>Regression</b>  | <b>Coef. (SE)</b>              | <b>Conclusion</b>   |
|----------------------|----------------|---|------------------------|-----------------------|------------------------|---|--|--------------------------------|---------------------|
| H14 (b) <sup>7</sup> | ESCOM          | Matched ethnicity will increase the likelihood of soliciting a bribe. | Bribe solicited (0,1)  | Weak Coethnic (0,1)   | Full Sample, $n = 52$  | 0.278 vs. 0.438<br>One-sided t-test<br>$t = 1.125$ ,<br>$p = 0.133$ | Linear prob. model Controls: SES, connected, no. of officials, presence of superior official | 0.152 (0.141)<br>$p = 0.287$   | Consistent (weakly) |
|                      |                |   | Bribe solicited (0,1)  | Strong Coethnic (0,1) | Non-Minority, $n = 49$ | 0.316 vs. 0.455<br>One-sided t-test<br>$t = 0.840$ ,<br>$p = 0.203$ | Linear prob. model Controls: SES, connected, no. of officials, presence of superior official | 0.199 (0.163)<br>$p = 0.230$   | No effect           |
| H15                  | ESCOM          | Matched ethnicity will decrease the amount of the bribe solicited.    | Bribe Amount (0-40000) | Weak Coethnic (0,1)   | Expedited, $n = 31$    | 11761 vs. 13208<br>One-sided t-test<br>$t = 0.283$ ,<br>$p = 0.610$ | OLS model Controls: SES, connected, no. of officials, presence of superior official          | 1873.5 (6256.7)<br>$p = 0.767$ | No effect           |

<sup>7</sup>We inadvertently labeled two different hypotheses as H14. This is the second pre-specified H14.

**Table F.1: Results of Pre-Specified Analyses in ESCOM Context (continued)**

| PAP H# | Context | Hypothesis   | DV                     | IV                    | Sample                            | Bivariate   | Regression  | Coef. (SE)                     | Summary                |
|--------|---------|--|------------------------|-----------------------|-----------------------------------|---|---|--------------------------------|------------------------|
|        |         |  | Bribe Amount (0-40000) | Strong Coethnic (0,1) | Expedited, Non-Minority, $n = 29$ | 12670 vs. 14444<br>One-sided t-test<br>$t = 0.313$ ,<br>$p = 0.622$ | OLS model<br>Controls: SES, connected, no. of officials, presence of superior official          | 5954.5 (6222.1)<br>$p = 0.349$ | No effect              |
| H16    | ESCOM   | Matched ethnicity will have no effect on the likelihood that expedited service is offered without a bribe. | Expedited (0,1)        | Weak Coethnic (0,1)   | Full Sample, $n = 52$             | 0.278 vs. 0.375<br>Two-sided t-test<br>$t = 0.691$ ,<br>$p = 0.493$ | Linear prob. model<br>Controls: SES, connected, no. of officials, presence of superior official | 0.175 (0.136)<br>$p = 0.203$   | Consistent (no effect) |
|        |         |  | Expedited (0,1)        | Strong Coethnic (0,1) | Non-Minority, $n = 49$            | 0.263 vs. 0.364<br>Two-sided t-test<br>$t = 0.639$ ,<br>$p = 0.526$ | Linear prob. model<br>Controls: SES, connected, no. of officials, presence of superior official | 0.084 (0.151)<br>$p = 0.581$   | Consistent (no effect) |

**Table F.1: Results of Pre-Specified Analyses in ESCOM Context (continued)**

| <b>PAP H#</b> | <b>Context</b> | <b>Hypothesis</b>   | <b>DV</b>              | <b>IV</b>       | <b>Sample</b>         | <b>Bivariate</b>  | <b>Regression</b>   | <b>Coef. (SE)</b>                  | <b>Summary</b>      |
|---------------|----------------|---|------------------------|-----------------|-----------------------|---|---|------------------------------------|---------------------|
| H17           | ESCOM          | Political connections will decrease the likelihood of soliciting a bribe.                             | Bribe Solicited (0,1)  | Connected (0,1) | Full Sample, $n = 52$ | 0.423 vs. 0.231<br>One-sided t-test<br>$t = 1.481$ ,<br>$p = 0.073$ | Linear prob. model Controls: SES, weak coethnicity, no. of officials, presence of superior official | -0.191<br>(0.139)<br>$p = 0.177$   | Consistent          |
| H18           | ESCOM          | Political connections will decrease the amount of the bribe solicited.                                | Bribe Amount (0-40000) | Connected (0,1) | Expedited, $n = 31$   | 16671 vs. 8824<br>One-sided t-test<br>$t = 1.614$ ,<br>$p = 0.059$  | OLS model Controls: SES, weak coethnicity, no. of officials, presence of superior official          | -7962.3<br>(5661.8)<br>$p = 0.172$ | Consistent (weakly) |
| H19           | ESCOM          | Political connections will increase the likelihood that expedited service is offered without a bribe. | Expedited (0,1)        | Connected (0,1) | Full Sample, $n = 52$ | 0.154 vs. 0.462<br>One-sided t-test<br>$t = 2.500$ ,<br>$p = 0.008$ | Linear prob. model Controls: SES, weak coethnicity, no. of officials, presence of superior official | 0.435<br>(0.134)<br>$p = 0.002$    | Consistent          |



**Table F.1: Results of Pre-Specified Analyses in ESCOM Context (continued)**

| PAP H# | Context | Hypothesis   | DV                     | IV             | Sample                | Bivariate   | Regression  | Coef. (SE)                      | Summary               |
|--------|---------|--|------------------------|----------------|-----------------------|---|---|---------------------------------|-----------------------|
| H20    | ESCOM   | High SES will increase the likelihood of soliciting a bribe.                             | Bribe Solicited (0,1)  | High SES (0,1) | Full Sample, $n = 52$ | 0.355 vs. 0.286<br>One-sided t-test<br>$t = 0.513$ ,<br>$p = 0.695$ | Linear prob. model Controls: connected, weak coethnicity, no. of officials, presence of superior official | -0.206 (0.142)<br>$p = 0.153$   | Inconsistent (weakly) |
| H21    | ESCOM   | High SES will increase the amount of the bribe solicited.                                | Bribe Amount (0-40000) | High SES (0,1) | Expedited, $n = 31$   | 12195 vs. 12642<br>One-sided t-test<br>$t = 0.086$ ,<br>$p = 0.466$ | OLS model Controls: connected, weak coethnicity, no. of officials, presence of superior official          | -3048.7 (5856.2)<br>$p = 0.607$ | No effect             |
| H22    | ESCOM   | High SES will decrease the likelihood that expedited service is offered without a bribe. | Expedited (0,1)        | High SES (0,1) | Full Sample, $n = 52$ | 0.290 vs. 0.333<br>One-sided t-test<br>$t = 0.324$ ,<br>$p = 0.626$ | Linear prob. model Controls: connected, weak coethnicity, no. of officials, presence of superior official | 0.109 (0.136)<br>$p = 0.430$    | No effect             |

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