Pre-Analysis Plan for the Tunisia International Monetary Fund Survey

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Introduction

This document describes the proposed research design for an online survey and survey experiments to be fielded in Tunisia. The first experiment examines attitudes related to the pending IMF deal with the Tunisian government. This survey experiment uses primes from domestic and international actors to understand the drivers of Tunisians' (and especially young Tunisians') opinions towards the IMF. The second experiment is a preference falsification experiment about President Kais Saied to determine if Tunisians are unwilling to register their true preference for/against the President due to increasing repression.

For the priming experiment, this is the second round of the same design. We implemented an earlier version with a longitudinal sample of young Tunisians, and we have decided to field a version of the study with a representative online sample. We have completed initial data collection (approximately 300 responses) and checked the data for validity but have not conducted any analyses. In this document we fully describe the new experiment regarding President Kais Saied and also some minor modifications to the IMF experiment involving some new survey questions.

Background

In terms of expectations, we have seen a marked deterioration in the economic climate in Tunisia due to the lingering effects of the COVID-19 pandemic and the authoritarian ambitions of President Kais Saied combined with Tunisia's long-standing fiscal crisis. Policymaking has been largely stalled since parliament was shut down in the summer of 2021 and no new notable reform efforts to enhance the business environment have been implemented. We expect that the issue of Tunisia's potential deal to avert a financial disaster with the International Monetary Fund could be of quite high salience among the population.

Our first experiment focuses on the pending negotiations with the International Monetary Fund over a proposed deal for Tunisia to secure loans to balance its budget while it engages in structural reforms, including restructing inefficient government-owned enterprises, reducing the public sector wage bill, increasing taxation of the informal sector and rationalizing social safety nets to target the poor.[1] While much of the theory of IMF and country decision-making focuses on macro-economic criteria, increasingly there is an attention to elite-citizen dynamics and how public perceptions of austerity reforms are shaped.

Our study builds on prior studies that have examined the reactions of ordinary people to international organizations. Brutger and Clark (2022) use a survey experiment in the United States to understand whether different primes about the cost of IOs will increase or decrease support for IOs, especially in terms of differences between liberals and conservatives. In a similar vein, Ecker-Ehrhardt, Dellmuth, and Tallberg (2022) implemented a survey in Brazil, the United States, Germany and Indonesia to see how ideological

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[1] For more information, see https://www.imf.org/en/News/Articles/2022/10/15/pr22353-tunisia-imf-staff-reaches-staff-level-agreement-on-an-extended-fund-facility-with-tunisia#:~:text=%E2%80%9CThe%20Tunisian%20authorities%20and%20the,to%20about%20US%241.9

proximity to IOs shapes the legitimacy that people accord to IOs. In addition, Kaya, Handlin, and Gunaydin (2020) employ a survey experiment in Greece to show how people's support for the IMF is conditioned by the support or opposition that populist politicians offer to IMF deals.

Relative to these studies, our focus is on a specific country and IMF deal, and as such we will trade off realism for abstraction (Brutger et al., n.d.). This has the advantage of making our findings very relevant to the context within which they are found, and thus increasing internal validity, but at the necessary cost of limiting external validity. There are features to the Tunisian case, as we discuss below, that are unique and probably unlikely to replicate exactly in other countries. Nonetheless, the high salience of the issue in Tunisia combined with the way that domestic actors seek to shift blame to the IMF provides an excellent opportunity to both test and develop theories about how IMF intrusions affect domestic politics and the possibilities of securing a deal.

Although Tunisia appears to be nearing a debt default,[2] the IMF deal remains a politically risky subject . In the past month, President Kais Saied announced that he would withdraw from the negotiations out of concern for Tunisian sovereignty[3], only to have his cabinet members walk back that claim and state that negotiations are ongoing .[4] The IMF deal has been vociferously opposed by Tunisia's encompassing labor union, the Union Generale Tunisienne du Travail (UGTT), which reached a deal with the government for higher publci sector wages in support of IMF-backed reforms in September of 2022[5] but has since reverted to bitter denunciations of IMF attempts to undercut public sector jobs and compani es. [6] Because the UGTT represents all public sector workers, including in transportation, utilities and education, a UGTT strike can cripple the country and has repeatedly since Tunisia's democratization in 20 12 .

Other opposition politicians, who have been targeted by Saied with repressive measures in recent months,[7] have abstained from commenting on the IMF negotiations except to express frustration over Tunisia's deteriorating economic situation. [8] The opposition likely sees the necessity of negotiating with the IMF as a serious liability for Saied's strongman rule and would prefer to avoid accepting any blame for concessions made to the IMF .

As a result of these political difficulties, virtually all statements of support for the IMF deal have come from international actors such as the United States[9] and France,[10] with the exception of some academic economists[11] and others with little political influenc e.[12] This tricky political situation suggests that it is a useful arena in which to look at the effect of public statements by domestic and international officials on support for IMF negotiations, especially as the negotiations are in a crucial pha se. While public opinion is not usually considered as the most important element in deals that avert fiscal crises, during this precarious period it may have an outsize influence on the decisions of political actors who fear for their survival and need public support to push back at riva ls.

Preference Falsification

Our second experiment uses randomized response techniques (Gingerich et al. 2014) to study whether people may fear reporting their true opinion about Kais Said's growing authoritarian form of government. Given

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[2]See https://www.fitchratings.com/research/sovereigns/fitch-downgrades-tunisia-to-ccc-18-03-2022.

[3]See https://www.ft.com/content/b10ba70e-5644-4290-a2e8-63754d5d2cad.

[4]See https://twitter.com/MonicaLMarks/status/1644669841557667845.

[5]See https://www.reuters.com/world/africa/tunisia-hopes-reach-deal-with-imf-before-end-next-month-2022-09-16/.

[6]See https://northafricapost.com/62221-tunisia-powerful-ugtt-slams-government-for-selling-state-run-companies-in-deal-with-imf.html.

[7]See https://www.lemonde.fr/en/le-monde-africa/article/2023/04/17/tunisia-opposition-party-leader-rached-ghannouchi-arrested_6023264_124.html.

[8]See https://www.middleeastmonitor.com/20230410-tunisias-salvation-front-warns-of-imminent-collapse-and-appeals-to-algeria/.

[9]See https://english.alarabiya.net/News/north-africa/2023/03/22/US-Secretary-of-State-Blinken-says-Tunisia-risks-deep-end-without-IMF-deal.

[10]See https://themaghrebtimes.com/macron-calls-for-helping-tunisia-regain-political-stability-and-reaching-an-agreement-with-the-imf/.

[11]See https://www.leconomistemaghrebin.com/2023/04/17/moez-joudi-le-recours-au-fmi-est-une-necessite/.

[12]See https://www.arabnews.com/node/2287411.

many reports of repression, including the jailing of political opponents, this experiment could help us uncover whether the new climate of fear and intimidation is making it harder to do inference on political opinions. While separate, the results of this experiment will also help us understand whether and to what extent our IMF survey may be affected by sensitivity bias.

Proposed Hypotheses

IMF Experiment

Our proposed hypotheses are as follows:

> H1: Domestic actors will have a greater effect on support for the IMF deal than foreign actors.
>
> H2: Actors expressing concern about ramifications of the IMF deal on the Tunisian economy will reduce support for the IMF deal.
>
> H3: Actors expressing concern about the issues of infringement on Tunisian sovereignty of the IMF deal will reduce support for the IMF deal.
>
> H4: Increased ideological distance from the actor supporting/opposing the IMF is associated with a reduced effect of the actor's statement on the respondent's IMF support.
>
> H5: Increased information about the IMF negotiations is associated with a reduced effect of the actor's statement on the respondent's IMF support.

Hypotheses H1 proposes that our UGTT and President Said treatments will be of greater strength in magnitude (regardless of sign) compared to the President Macron treatment. H2 proposes that the UGTT treatment will have the greatest effect on support for the IMF deal, while H3 proposes that the President Said treatment will have the greatest effect on support for the IMF deal. These hypotheses can be falsified either by observing null effects (hopefully precisely estimated at zero) or, for H2 and H3, observing effects in the opposite direction of what is expected; i.e., increased support for the IMF deal rather than reduced support.

Hypotheses H4 and H5 are properly considered either mediation analyses or moderation analyses (i.e., subgroup effects). We note that the distinction between these two ways of understanding "interactive" causality is disputed and so we will consider both—interacting pre-treatment variables with the treatment and also estimate separate models to test for mediation using the `mediation` package in R. We use association language in these hypotheses because the pre-treatment variables are not randomly assigned; hence we can only make inferences about the effect of the treatment within pre-treatment strata rather than the effect of the strata as such. We further define how we intend to measure ideological distance and information about the IMF using survey data below.

Preference Falsification

The hypothesis we intend to test in terms of preference falsification is as follows:

> H1: Tunisians are less likely to indicate support for Kais Saied in direct questions versus a randomized-response question.

Research Design

To collect survey data, we intend to recruit a broadly representative sample of Tunisians. The maximum sample size we intend to collect is 1,000 respondents with a minimum of 500. We will recruit respondents

using Facebook advertisements. Respondents will complete a screener survey and then be invited to complete the full survey instrument in exchange for a mobile credit worth approximately $5.

This pre-registration differs from our earlier one in that we are recruiting a broadly representative sample instead of a sample limited to young Tunisians. We intend to also use the prior sample in our analyses.

Experimental Treatment: IMF

The research design is identical to our prior registration and so we will not reproduce it here except to note relevant changes, which is primarily the following new outcome:

1. How concerned are you about Tunisia getting unfair treatment from the IMF?

A. I am very concerned. B. I am somewhat concerned. C. I am not concerned at all.

We have also added the following pre-treatment question:

1. How much have you heard about the ongoing negotiations with the International Monetary Fund (IMF) through media (television, Facebook, newspapers, etc.)?

A. On a daily basis B. Once or twice a week C. Once a month D. I rarely hear about the IMF deal E. I have never heard about the IMF deal

Experimental Treatment: Randomized Response

The crosswise model (CM) / randomized response (RR) questions allow the respondent to reasonable anonymity in giving an opinion on a sensitive topic. Our CM/RR question is as follows:

> We understand that politics in Tunisia is sensitive right now. This question is worded so that you can tell us what you think but still protect your privacy. Because we don't know when your mother was born, we also won't know for sure your political opinion.
>
> My mother's birth date is in January, February or March. I oppose President Kais Saied's moves to change Tunisia's constitution and close the parliament.
> Please pick the answer that best represents whether these statements are true of you:

1. Both statements are true OR neither is true.

2. One of the two statements is true.

The use of the mother's birthday ensures that the response is essentially randomized as we do not know the mother's birthday. The downside of this design is that it imposes a relatively high burden on the respondent to understand what is going on. We attempted to alleviate the burden by adding the text above explaining the question's odd format.

We will randomly assign with $\frac{1}{2}$ probability the CM question above and the direct question below:

> Do you oppose President Kais Saied's moves to change Tunisia's constitution and close the parliament?

1. Yes

2. No

We can then define our estimand as the difference in the proportion of yes responses in the RR question group versus the direct question group. To calculate this, we first need to define the proportion of yes responses to this question in the population, which following the notation of Gingerich et al. (2014), we denote as $\pi = P(\theta_i = 1)$, where θ_i is the respondent-level true response to this question, i.e., their actual beliefs about President Saied.

We can then estimate π via the following likelihood:

$$\pi \sim \text{Beta}(\frac{\lambda - .75}{-.5})N, (1 - \frac{\lambda - .75}{-.5})N)$$

Where λ is the proportion of respondents who chose the first answer, i.e. both statements are true or neither is true. Because the proportion of respondents with birthdays is known a priori ($frac14$), we can then directly calculate the sample proportion of the sensitive trait, π. To obtain uncertainty intervals, we use the Beta distribution with counts of prior successes (first answer responses) and prior failures (other responses). To do so, we multiply the sample proportion π by the total number of survey respondents N.

Defining π as a Beta-distributed random variable allows us to then calculate estimand for the difference between π and the proportion answering affirmatively to direct Kais Saied question ($\omega = P(d_i = 1)$):

$$\omega \sim Beta(\sum_{n=1}^{N} \mathbf{1}d_i = 1, \sum_{n=1}^{N} \mathbf{1}d_i = 0)$$

We can then use Bayesian sampling with Hamiltonian Monte Carlo with Stan to obtain posterior draws $s \in S$, and calculate the differences in proportions:

$$\hat{ATE} = \frac{\sum_{s=1}^{S} \pi_s - \omega_s}{S}$$

Where we will use the mean of the posterior samples S as our point estimate and the 5% to 95% empirical interval as the uncertainty interval over this difference. If the empirical interval is completely positive, then we will consider the sensitive survey question to have captured a higher level of opposition to Saied, which would be affirmative evidence for sensitive survey question bias.

Additional Analyses

We can further parameterize the difference in proportions by examining how respondent characteristics affect the willingness to report Saied opposition separately for the direct question and the CM question. These include age, gender, political affiliation (party voted for in the prior election), religious affiliation and rural vs. urban divides.

In addition, we are interested in employing the (**gingerich2014surveya?**) estimator to understand the different types of responses in our population (i.e. people who oppose Saied but are unwilling to report it on the survey).

Power Analysis

Our power analysis for the IMF experiment is functionally the same and so we do not repeat it. We do include a power analysis for the Kais Saied CM/RR experiment.

We expect to be able to recruit between 500 and 1,000 respondents so we will repeat the power analysis for our minimum and maximum sample sizes. We will assume the true opposition to Kais Saied is somewhere

around 55% based on recent polling. We will test for whether we can detect sensitive survey bias from 1% to 20% for each of two sample sizes:

We can then plot the power to detect an effect (defined by a fully positive uncertainty interval) given different values of sensitivity bias:

```r
require(ggthemes)
```

```
## Loading required package: ggthemes
```

```r
over_bias <- bind_rows(over_bias_500,
                       over_bias_1000) %>%
  mutate(N=factor(N))

over_bias %>%
  mutate(detect=as.numeric(low_est>0 & high_est>0)) %>%
  ggplot(aes(y=detect,x=b)) +
  stat_summary(fun.data="mean_cl_boot",
               aes(linetype=N,
                   colour=N)) +theme_tufte() +
  geom_hline(yintercept=.8,linetype=2) +
  ggtitle("Estimated Power by Level of True Bias (80% threshold indicated)")
```

Estimated Power by Level of True Bias (80% threshold indicated)
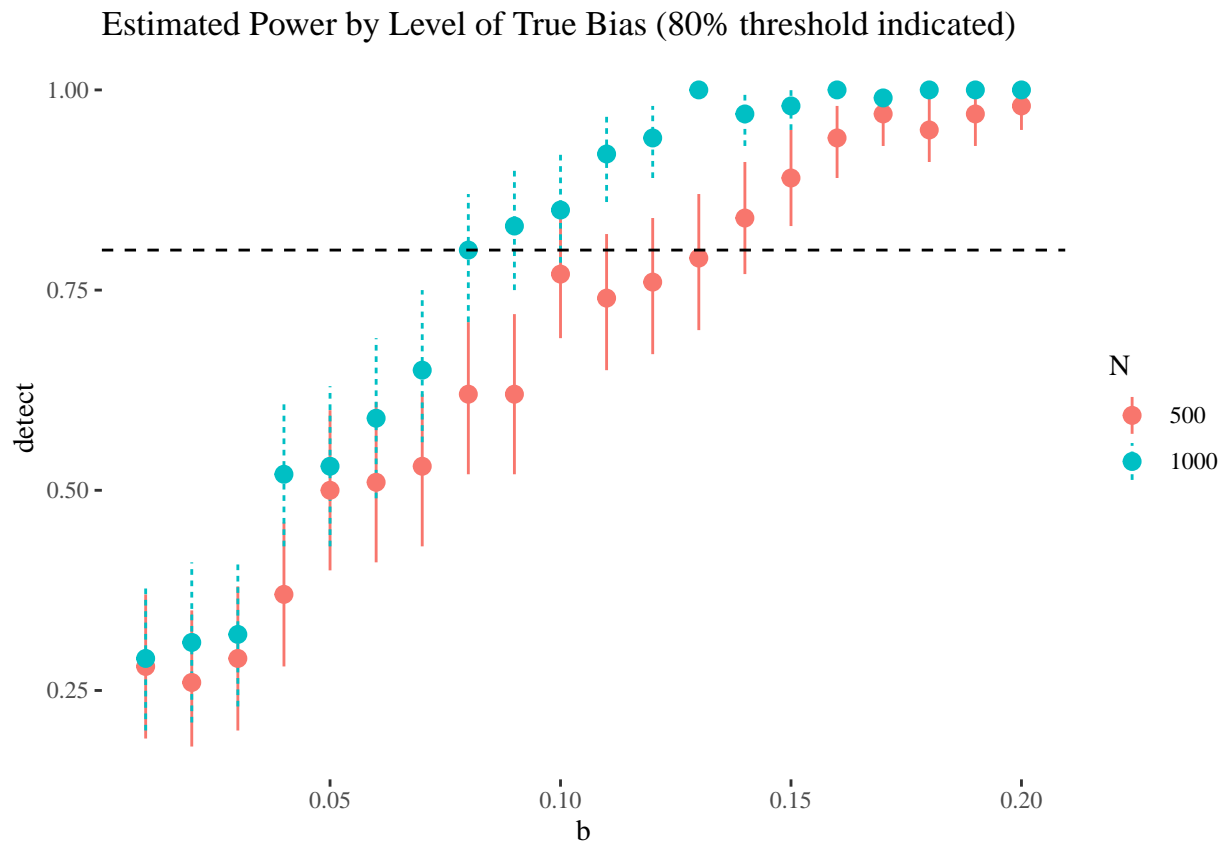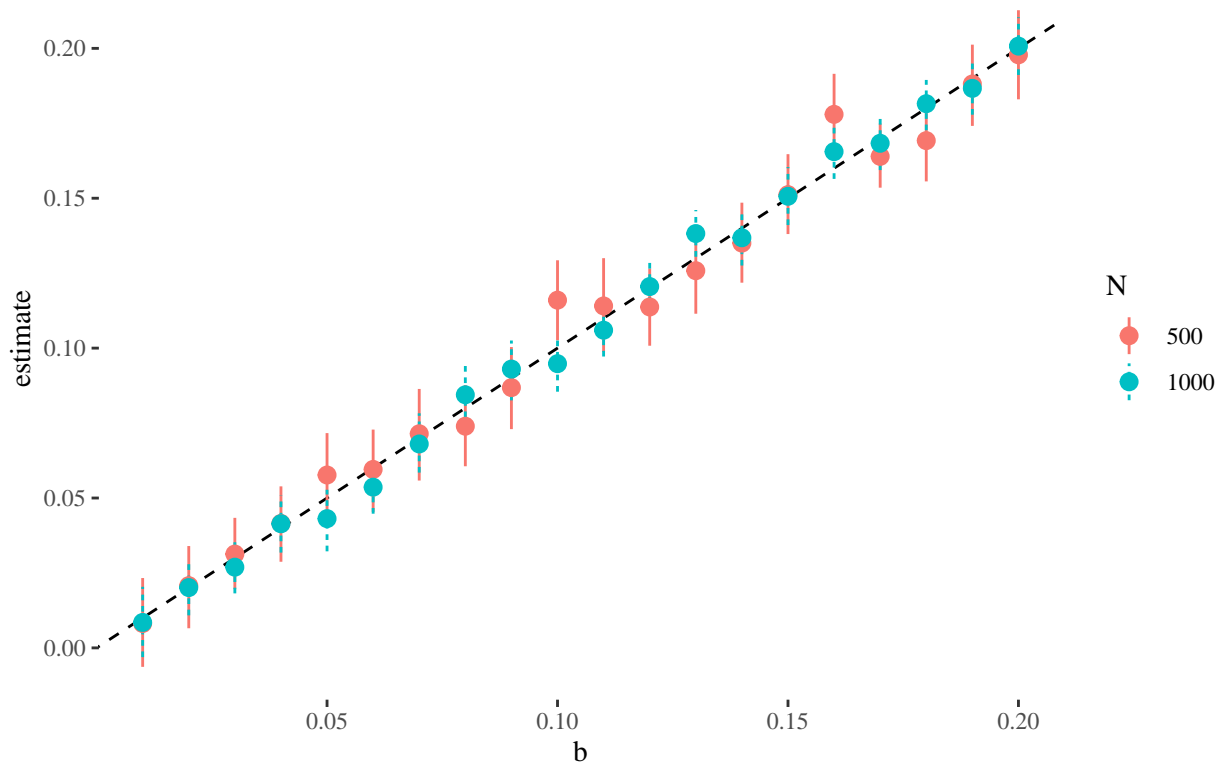
```
over_bias %>%
  mutate(cov=as.numeric((b>low_est) & (b<high_est))) %>%
  ggplot(aes(y=estimate,x=b)) +
  geom_abline(intercept=0,slope=1,linetype=2) +
  stat_summary(fun.data="mean_cl_boot",
               aes(linetype=N,
                   colour=N)) + theme_tufte() +
  ggtitle("Estimated Average Bias by Level of True Bias")
```


Estimated Average Bias by Level of True Bias

These plots show that we obtain reasonable power at approximately a bias of 8 pp. We obtain higher power with 1,000 observations but power with 500 observations is still reasonable. At either sample size we should have good power with a bias of 10 pp. The bias plot shows that the estimator is an un-biased estimator of the true population proportion as specified by our model.

Estimation

To estimate the IMF ATE, we intend to use an ordered logit specification as most of our outcomes are ordinal in nature and complement that with an OLS specification. We will use the R package `brms` to estimate models and report the average of the posterior draws as the ATE.

For our estimate of the true proportion of people opposing Kais Saied, we will use our model as pre-registered here and the R package `cmdstanr` to do the posterior sampling.

Brutger, Ryan, and Richard Clark. 2022. "At What Cost? Power, Payments, and Public Support of International Organizations." *The Review of International Organizations*, October. https://doi.org/10.1007/s11558-022-09479-9.

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Ecker-Ehrhardt, Matthias, Lisa Dellmuth, and Jonas Tallberg. 2022. "Political Values, Ideological Proximity, and the Social Legitimacy of International Organizations," October. https://doi.org/10.17605/OSF.IO/5E7JD.

Gingerich, Daniel W., Ana Corbacho, Virginia Oliveros, and Mauricio Ruiz-Vega. 2014. "When to Protect? Using the Crosswise Model to Integrate Protected and Direct Response in Surveys of Sensitive Behavior."

Kaya, Ayse, Sam Handlin, and Hakan Gunaydin. 2020. "Populism and Voter Attitudes Toward International Organizations: Cross-Country and Experimental Evidence on the International Monetary Fund," January. https://www.peio.me/wp-content/uploads/2020/01/PEIO13_paper_131_1.pdf.