Metaketa II: Formalization, Tax Compliance, and Public Service Provision

Meta-analysis Pre-analysis Plan

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1 Introduction

In this document we describe the research and analysis strategy for an EGAP Metaketa comprised of six field experiments that study the formalization of citizens relationship with the government, public service provision, and tax compliance in low- and middle-income countries, with special attention to contexts where state capacity is low. First, we outline the motivation for a Metaketa on this topic. Then, we describe the Metaketa approach to accumulate knowledge, after which we describe the six projects and their common treatment arm and outcome measures. Next, we enumerate our hypotheses and details of our analysis. We conclude with a brief discussion of our approach to ethics and describing the timing of the research.

2 Motivation

Taxation is crucial for development because it endows governments with resources needed to provide public services, and it encourages citizens to demand effective and responsive governments (Huntington 1991; Ross 2004; Paler 2013). Yet, many developing countries are trapped in a vicious cycle in which governments are unresponsive and unaccountable, the provision of quality public services is lacking, and tax compliance is low.

A vast scholarship has studied why some individuals comply with their taxes, and others do not. Yet, much of this work has focused on developed countries. Hence, the lessons learned may be specific to countries where citizens should expect that the government will use tax revenues to deliver public services, and that they are visible, or ‘legible (Scott, 1998), to the state through civil and commercial registration systems.

In developing countries, in contrast, government use of tax revenues to provide services may be questionable. The informal sector also remains very large in developing countries (McKenzie and Woodruff 2013), often with a majority of small businesses operating in the informal sector of the economy, millions of people living in informal settlements, and a disproportionate number of households lacking formal access to public services. In this context, could formalization trigger a chain of effects that has governments respond by providing services, and then culminates in an increase in tax compliance?

Like tax compliance, a citizen’s decision to formalize its relation with the state seems to be the result of a comparison of the expected benefits of formalization to its expected costs (Perry, et al. 2007; McKenzie and Sakho 2010; Neuwirth 2011). In the case of formalization, however, costs not only include future tax liability but, in many cases, include a costly and complex process. People in the informal sector may lack the information, time, and resources (financial and human capital) to navigate the bureaucracy and oftentimes arcane regulations. Moreover, in many cases, citizens are not certain that benefits of formalization will materialize. Then, the high costs of the process of formalization and its uncertain benefits may deter citizens from transitioning to the formal sector.

Experimental work on the topic has found that interventions that only provide information about the process of registration, including its benefits, have no effect on firms’ decision to formalize (Andrade et al. 2013; De Giorgi and Rahman 2013; Bruhn and McKenzie 2014). More expensive interventions, such as cash payments or business training, lead to higher rates of formalization (De Mel et al. 2013; Benhassine et al. 2016), but
these are not cost-effective interventions, and they may not produce durable effects (Galiani et al. 2016). Finally, a few studies have shown that interventions that offered information about the process of formalization and assistance to people to undergo such process lead to higher rates of formalization (Campos et al. 2015; Benhassine et al. 2016; Galiani et al. 2016). However, the generalizability of the results of these studies may limited. In Benhassine et al. (2016)’s and Galiani et al. (2016)’s studies, samples were drawn from Benin’s largest city (Cotonou), and Colombia’s capital city (Bogota). In Campos et al. (2015)’s study, the sample included firms with larger revenues (25 percentile and above), with a fixed location, with more than one person working in the business, and with at least one worker contracted outside of family members and business owners. Hence, these studies show that in large cities, and among more profitable firms, there may be a latent demand for formalization, which is blocked by transaction costs. Yet, it is unclear whether the effects of the bundled treatment of information and assistance could be generalized to small- and mid- size firms outside of urban centers. Moreover, these studies have focused on the process of formalization of a business, which may not produce generalizable lessons for other formalization processes, such as the acquisition of a land title, or the formal access to basic public services.

The six projects in this Metaketa, and our meta-analysis, aim to contribute to this literature by studying the effects of a common treatment arm, to be implemented in a consistent manner by all projects, which combines information about the process of formalization, its benefits and costs, as well as assistance and/or subsidies to remove transaction-cost type barriers that impede those who otherwise wish to formalize to do so. Although the contexts of the projects are different, spanning from Colombia to India, in all cases preliminary field work by PIs suggests that there is a latent high demand for the formalization processes included in this Metaketa, which is probably driven by the tangible benefits associated with them, including the possibility to access valuable public services. Moreover, in all cases citizens pay costs of remaining in the informal sector, including unofficial payments, dependence on non-state utilities providers that extract high rates in exchange for low quality services, uncertainty, and fear of government repression. Details on the projects are included below. We will explore if the common treatment arm, which will encourage citizens to formalize its relation with the state, helps establish a fiscal contract between citizens and their governments, whereby local governments deliver public goods in exchange for tax compliance (Levi 1989; Tyler 1990; Levi and Sacks 2009; Paler 2013; Ali et al. 2014)

3 The Metaketa Approach

Metaketas are integrated research programs where multiple teams of researchers work on projects in parallel to generate generalizable answers to major questions of scholarly and policy importance. The goal of a Metaketa is the accumulation of knowledge. The core pillars of the Metaketa approach are:

1. **Major themes**: Metaketas focus on major questions of scholarly and policy relevance with a focus on consolidation of knowledge rather than innovation
2. **Strong designs:** all studies employ randomized interventions to identify causal effects

3. **Collaboration and competition:** teams work on parallel projects, they collaborate on design but may produce conflicting results

4. **Comparable interventions and measures:** by design, differences in findings should be attributable to contextual factors and not to differences in design

5. **Analytic transparency:** common commitment to analytic transparency including design registration, open data and materials, and third-party replication prior to publication

6. **Formal synthesis** based on ex-ante planning and integrated publication to avoid file-drawer bias

This Metaketa is administered by the Evidence in Governance and Politics (EGAP) network at the University of California, Berkeley. The initiative was launched in May 2016 and will run until October 2019.

4 **Projects**

A summary of the projects with details on their experimental designs is included in Table 1.

5 **Interventions**

The types of formalization included in this Metaketa are: registration of a small business (Brazil and Nigeria), acquiring a property title (Colombia and DR Congo), and acquiring formal access to a publicly provided service, like tubed water (India), or waste collection service (Malawi). Preliminary field work by PIs suggests that there is a latent demand for these types of formalization. In Brazil, formalization of small businesses grants micro-entrepreneurs access to the highly valued social security system, and there seems to be a perception that it could protect them from harassment by street level bureaucrats. In Nigeria, members of trade associations reported, during preliminary research, that there was a strong demand for public services seen as linked to payment of Lagos State’s income tax, such as school registration. Accordingly, Lagos Internal Revenue Service officials indicate that applications for taxpayer registration increase in the periods preceding school term opening. Also, many Lagosians mentioned formalization and tax payment as grounds for demanding improved public services, such as electricity connections and road upgrading. In Malawi, informal interviews and focus groups suggest that there exists a strong demand among citizens for formal relationships with the city of Zomba, and that Zomba City Council members are aware of it. In particular, among citizens who expressed an opinion about the types of services the city of Zomba should provide, 88% mentioned waste collection. In Mumbai, India, focus groups and interviews with slum residents suggest that there are several factors contributing to a high latent demand for the formalization of water services.
First, municipally provided water is considerably cheaper than privately sourced water connections. Second, the quality of government provided water is higher than the quality of illegally provided water, owing to well-functioning filtration and chlorination systems. Third, the supply of government provided water is considered to be stable and reliable, whereas illegal water lines are frequently cut and discontinued. Finally, private water connections in Mumbai are largely provided by the so-called “water mafia”. Engaging with these illegal groups is intimidating for slum dwellers, who count among the poorest and most vulnerable residents of the city. Additionally, anthropologists and political scientists who have conducted in-depth ethnographic studies of the politics surrounding water access in Mumbai have reported widespread interest in government provided water connections among Mumbai slum dwellers (Anand 2011; Anand 2014; Björkman 2015). In Colombia, formalization of property rights in rural areas has been a salient issue through out the peace negotiations with the FARC. Moreover, the continuing operations of social enterprises that specialize in providing low-cost property formalization suggest that there is a latent demand for their services. In DR Congo, participants of focus groups expressed interest in obtaining a formal title, if a surveyor came to their house to help with the process, which suggests that the main barrier to formalization is not lack of interest but transaction costs.

The common treatment arm in this Metaketa aims to remove transaction-cost type barriers that impede those who otherwise wish to formalize to do so. It consists of a bundled treatment. The first component of the intervention is information about the process citizens need to follow to formalize their relationship with the government. Second, subjects assigned to treatment will be offered information about the benefits and costs of formalization (i.e. tax liability). Third, and finally, the intervention will include a subsidy and/or assistance meant to reduce the costs of the process of formalization.

More specifically, in Brazil, individuals assigned to the common treatment arm will be offered a consulting session about the MEI program (Microentrepreneur program), which aims to formalize small firms. Treated individuals will be offered assistance to navigate the process of formalization at their business location. Similarly, in Nigeria treatment involves a consulting session about the process of obtaining a tax payer identification and an electronic tax clearance certificate (e-TCC). Treated individuals will be offered information about benefits and costs of formalization, including an assessment of their income tax liability for the first and for subsequent years, as well as assistance to fill out the necessary paperwork. In Colombia and DRC, the process of acquiring a property title is expensive. Thus, the common treatment arm will include financial subsidies to help reduce costs to subjects, in addition to the information and on site assistance in filling paperwork. In Malawi, treated individuals will be offered the opportunity to pay the city fee through their mobile phone, reducing barriers to payments. In India, acquiring a connection to a

1Evidence from land titling programs in Mexico and Argentina also suggest that informal dwellers are keenly interested in securing formal titles, both in rural and urban settings. In Mexico, de Janvry, Gonzalez-Navarro, and Sadoulet (2014) note that a voluntary rural land-certification program implemented between 1992 and 2006 successfully certified 92% of the communal land it targeted. For a program in Buenos Aires, Argentina, Galiani and Schargrodsky (2010) report that 87% of owners of informal plots seized the opportunity of gaining a formal title when offered one.
water main involves a complex bureaucratic process. Thus, the common treatment arm includes more intensive assistance to navigate the bureaucracy than in other projects.

In all studies the common treatment arm will be compared to a pure control group. In addition, studies include alternative treatment arms, which are meant to be the basis of individual articles.

6 Hypotheses

6.1 Primary Hypotheses

We have five primary hypotheses that link the encouragement intervention to a chain of outcomes, including citizen’s intent to formalize their relation with the state, formalization, access to public services, tax compliance, and attitudes towards the government.

H1 Common treatment arm increases citizen’s intent to formalize their relationship with the government

H2 Common treatment arm increases citizen’s formalization of their relationship with the government

H3 Common treatment arm increases citizen’s access to public services tightly related to the formalization process, and reduces reliance on non-public providers of such services

H4 Common treatment arm increases citizen’s tax compliance (i.e. payment of taxes or dues for services provided) directly related to the process of formalization

6.2 Hypotheses on Secondary Outcomes

Secondary hypotheses relate to outcomes that are not directly involved on the process of formalization, but that could be impacted as a result of a citizen formalizing its relation with the state, becoming a tax payer (in specific tax domain related to formalization), and experiencing public service provision (or lack thereof):

H5 Common treatment arm improves citizen’s attitudes towards the government

H6 Common treatment arm increases civic and political participation

H7 Common treatment arm increases citizen’s access to other public services

H8 Common treatment arm improves citizen’s tax morale more generally, and increases willingness to pay taxes not directly involved with the formalization process

H9 Common treatment arm affects perceptions about prevalence of non-compliance with taxation, as well as probability of being caught not paying taxes, and the severity of the punishment associated with it
7 Outcome measures

7.1 Attempt to formalize

All studies will encourage citizens to formalize their relationship with the state (in different domains). Yet formalization could be a complex process, which some citizens may not complete. For example, a citizen may initiate the paperwork to formalize, but may find it impossible to navigate the bureaucracy until completion. Moreover, formalization is the product of actions undertaken by citizens and by the state. Citizens may complete their part of the process, but it is possible that the state could fail on its end. Therefore, the first outcome of interest consists on measuring if subjects exposed to the common treatment arm attempt to formalize. In some studies, like in Brazil and Nigeria, attempt to formalize takes place when subjects fill in and submit the paperwork to register their business. In some other studies, like in Malawi, citizens are considered as having attempted to formalize when they sign up to begin paying city rates in exchange for receiving waste collection service. Attempt to formalize is a binary outcome.

7.2 Formalization

Formalization takes place when citizens complete the process of registering their business (Brazil and Nigeria), acquiring a property title (Colombia and DR Congo), acquiring a formal water connection (India), and make their initial payments of city rates and received waste collection service by the city (Malawi). Studies will make use of administrative data on formalization, which is a binary outcome.

7.3 Access to public services

Studies will measure access to public services. In most of the studies, formalization is tightly related to the provision of specific services, like waste collection in Malawi, tubed water in India, social security in Brazil, and public education in Nigeria. In other cases, formalization could be related to access to public services in a more indirect way. For example in Colombia and DR Congo, formalization of property rights is a private benefit, which nonetheless derives from a government service (i.e. honoring formal rights in judicial settings). All studies will measure citizens access to the most relevant public services in their surveys. Access to the most relevant public service is a binary outcome. In some cases, although citizens may have gained access to a public service, they may not see that service materialize in the short term. For example, in Brazil citizens may have access to social security, but they will receive a pension from the state once they reach the retirement age. In DR Congo and Colombia, citizens may acquire a property title. Yet, whether a formal right protects a citizen’s property is only realized in the case of a dispute. To account for this, studies will also measure in their surveys perceptions of access to public services.

We also expect that formalization could lead to familiarity with state agencies that spills over into the ability to access other services. Studies will measure access to a set of public services. From these questions, we will construct a study-specific inverse covariance weighted average, which will take into account that some services are more relevant in some studies than others.
7.4 Tax compliance

Studies will measure if subjects pay their taxes at endline. The type of taxes varies across studies. In Brazil, the study will measure payment of a flat rate fee that combines a social security contribution and all industry sector taxes. In Colombia and DR Congo, the studies will measure payments of property taxes. In Malawi, the study will measure payment of the city-rate (after the encouragement intervention and waste collection). In Nigeria, the study will measure payment of personal income tax. And, in India, the study will measure payment of water consumption fees. Studies will collect data on tax compliance from administrative sources.

Like access to public services, we expect that the common treatment arm could have spillover effects to other types of taxes. Hence, studies will measure payment of other taxes at endline, and will create an standardized index of tax compliance.

7.5 Attitudinal Outcomes

Studies will measure various attitudes towards the government including perceptions of state capacity, trust in government, perceptions of public corruption, support for ruling party or general approval of the government, perceptions of attribution of public services, among others. Studies will also measure tax morale, perceptions of prevalence of non-compliance with taxation, perceptions of probability of being caught when not paying taxes, and perceptions about the severity of the punishment when caught not paying taxes. From these items, standardized indexes of related outcomes will be created.

7.6 Civic and Political Participation

Studies will measure participants’ self-reported civic and political participation, as well as citizens engagement with the state to access services. Standardized indexes of related outcomes will be created.

8 Analysis details

Table 2 lists our outcomes of interest. We have grouped outcomes into categories. Within each category, we list the indicators we will use to measure each outcome. As mentioned before, when appropriate, we will combine survey items to form indexes. To adjust for multiple comparisons, we will follow the procedure used in Burde, Middleton and Samii (2016). Within each category of outcomes, we will use the Benjamini-Hochberg correction to constrain the false discovery rate at 0.05.

8.1 Primary Meta-analysis Strategy

We will estimate the common treatment arm impacts on outcome Y by calculating the intent-to-treat (ITT) estimate of assignment to the encouragement intervention in the following way:

First, for each study, we will report the effect size (as reported by the PIs), the precision with which the effect size has been estimated in that study (95% confidence intervals and
p-values), and the number of observations. Second, we will estimate the effects of the common treatment arm on Y via OLS:

\[ Y_{i,s} = \alpha + \beta_1 \text{Treatment}_{i,s} + \gamma_s + \theta_{j,s} + \epsilon_{i,s} \]  

(1)

where Treatment is an indicator for random assignment to the treatment arms. We will control for study fixed effects, and for any strata used in the individual studies to perform block randomization. Robust standard errors will be clustered at the level of randomization. We will also report a precision-weighted estimation (i.e., the weights will be specified as the inverse of the squared standard errors) (Borenstein et al. 2009).

8.2 Secondary Meta-analysis Strategy

We will report the Complier Average Causal Effects, where we use assignment to treatment as an instrument for formalization. The CACE approximates the effects of formalization on tax compliance, access to public services, tax morale, and attitudes towards the state. To assess whether our results are robust to departures from the strict exogeneity assumption, we will derive analytical bounds for our estimations (Conley at al. 2012; Nevo and Rosen 2012).

9 Moderators

We expect that some baseline covariates will act as moderators. That is, some baseline factors are not likely to be affected by the treatments, but they might be responsible for heterogeneous treatment effects. Specific measures will be harmonized to the extent possible.

9.1 Primary hypotheses about heterogenous effects

1. Benefits of formalization: People who expect clear and tangible benefits of formalization are more likely to undergo the process when assigned to treatment. In measuring the benefits of formalization, teams will also consider the potential reduction in costs of remaining in the informal sector.

2. Baseline attitudes towards the government: People with higher levels of approval of the government (or ruling party), with higher levels of trust in the government, and people who see the state as capable are more likely to formalize their relation with the government when assigned to treatment. Conversely, people who see the state as a corrupt agent will be less likely to be responsive to the encouragement intervention.

3. Baseline access to public goods: People who at baseline have access to public goods, and are satisfied with their provision, could be less responsive to the encouragement to formalize. On the other hand, they might also find the promise of future public goods more credible and respond more.

As diagnostics, we will also look at the relationship between each study’s effect size and sample size.
9.2 Secondary hypotheses about heterogenous effects

1. Gender: Although we have no theoretical expectations of the direction in which gender may nudge people, we plan to empirically assess if women respond different than men to the intervention.

2. Education and household income: People living at subsistence levels could be less responsive to the encouragement to formalize because of more limited resources to undergo the process, and because they may not afford the potential tax liabilities that could come with formalization. On the other hand, poorer individuals might expect greater marginal benefits from formalization because government-provided services are cheaper than privately-provided services. We will test the heterogeneous effects of education and income, although we remain agnostic about the direction of the effects.

3. Resident vs. migrant status: People with more permanent roots in their place of residence will be more responsive to the encouragement treatment. It is also possible that political elites will be more likely to facilitate formalization to long-term residents than newly-arrived or seasonal migrants.

10 Ethics

All projects in the Metaketa will abide by a common set of principles above and beyond minimal requirements (i.e. securing formal IRB approvals, avoiding conflicts of interest, and ensuring all interventions do not violate local laws):

- The EGAP principles on research transparency http://egap.org/resources/egap-statement-of-principles/
- Protect staff: Do not put research staff in harm’s way.
- Informed consent: Subjects will know that information they receive is provided as part of a research project. Core project data will be publicly available in primary languages at http://egap.org/research/metaketa/
- Partnership with local civil society actors to ensure appropriateness of information
- Non-partisan interventions: Only non-partisan information will be provided

11 Timing

Metaketa teams all agree to work according to a common timeframe, to make good faith efforts to complete all interventions and data collection by the agreed upon end date, and to restrict any individual project publication or presentation of results, which draws from the common treatment arm, until submission for publication of the meta-analysis. However, Metaketa members have agreed to consider individual teams’ proposals to publish individual papers drawing on alternative treatment arms. For such proposals to move forward, Metaketa members need to reach a positive consensus before the team moves forward with diffusion of results, and submission to academic journals.
<table>
<thead>
<tr>
<th>Table 1: Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of formalization</strong></td>
</tr>
<tr>
<td>Microenterprise registration</td>
</tr>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td><strong>Implementing agency</strong></td>
</tr>
<tr>
<td><strong>Type of implementing agency</strong></td>
</tr>
<tr>
<td><strong>Common treatment arm:</strong></td>
</tr>
<tr>
<td>Information about process</td>
</tr>
<tr>
<td>Information about costs and benefits</td>
</tr>
<tr>
<td>Subsidies/assistance</td>
</tr>
<tr>
<td><strong>Pure control condition</strong></td>
</tr>
<tr>
<td><strong>Unit of randomization</strong></td>
</tr>
<tr>
<td><strong>Method of randomization</strong></td>
</tr>
<tr>
<td>Clustered randomization</td>
</tr>
<tr>
<td>Block randomization</td>
</tr>
</tbody>
</table>
Table 2: Outcomes of interest

<table>
<thead>
<tr>
<th>Outcome categories</th>
<th>Indicator</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Outcomes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formalization</td>
<td>Intent to formalize</td>
<td>Administrative/verifiable data</td>
</tr>
<tr>
<td></td>
<td>Formalization</td>
<td>Administrative data</td>
</tr>
<tr>
<td>Access to public services</td>
<td>Access to public good most related to the process of formalization</td>
<td>Administrative/survey data</td>
</tr>
<tr>
<td></td>
<td>(Due to the nature of the relevant public services, some studies will measure perceptions of access to public services)</td>
<td></td>
</tr>
<tr>
<td>Tax compliance</td>
<td>Payment of tax or service directly related to the formalization process</td>
<td>Administrative data</td>
</tr>
<tr>
<td><strong>Secondary Outcomes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptions of state capacity</td>
<td>Respondents perception of government’s capacity /willingness to respond to a hypothetical weather-related emergency</td>
<td>Survey data</td>
</tr>
<tr>
<td>Trust in government</td>
<td>Trust in government (offices/agencies relevant to the process of formalization )</td>
<td>Survey data</td>
</tr>
<tr>
<td>Perceptions of public corruption</td>
<td>Respondents perception of public corruption Respondents report of bribe demands</td>
<td>Survey data</td>
</tr>
<tr>
<td>Support for incumbent government</td>
<td>Evaluation of ruling party /current government performance</td>
<td>Survey data</td>
</tr>
<tr>
<td>Civic and political participation</td>
<td>Index based on a battery of questions about participation</td>
<td>Survey data</td>
</tr>
<tr>
<td>Access to other public services</td>
<td>Index of access to a set of public goods/services Reliance on alternative providers of services</td>
<td>Survey data</td>
</tr>
<tr>
<td>Tax Morale</td>
<td>Belief that citizens should always pay taxes/ or should only pay taxes if they agree with government (probing intensity)</td>
<td>Survey data</td>
</tr>
<tr>
<td>Tax Compliance</td>
<td>Index of perceptions of tax obligations Index of knowledge of gov. responsible for taxes Index of tax payment solicitations Index of tax payments</td>
<td>Survey data Survey data Survey data Survey data</td>
</tr>
<tr>
<td>Perceptions non-compliance probability of being caught and punishment</td>
<td>Perceptions of prevalence of non-compliance Perceptions of relevant authority knowing who complies with taxes and who doesn’t Perceptions of probability of punishment if caught not paying taxes</td>
<td>Survey data Survey data Survey data</td>
</tr>
</tbody>
</table>
References


Burde, Dana, Joel A. Middleton and Cyrus Samii. 2016. “Pre-Analysis Plan for Assessment of Learning Outcomes and Social Effects of Community-Based Education in Afghanistan” EGAP registration archive. ID 20160615AB.


