Impact Evaluation of E-filing and In-depth Study of Risk-based Audits in Tajikistan
Methodology Note
August 2014

1. Abstract

- Briefly describe the proposed study in terms understandable to general audiences.

The goal of this study is two-fold: to provide rigorous evidence regarding the adoption and impact of electronic tax filing in Tajikistan using an experimental intervention; and, to provide in-depth analysis of the impact of risk-based audits using detailed data from the Tax Committee.

First, the e-filing study will shed light on factors that affect the adoption of e-filing. Two sets of incentives will be offered to firms to encourage them to e-file. The first incentive will be to provide information combined with training about e-filing to a randomly selected group of firms. This information treatment will describe the benefits of the program and address commonly stated barriers to adoption. The second incentive will be to offer a waiver on the e-filing registration fees (in addition to the information and training provided). The relative impact of these two treatments on adoption will be examined. In addition, other firm characteristics that predict adoption will be explored, particularly, the firm's risk of tax evasion (as measured by the Risk-Based Audit index).

Second, the study will examine the impact of e-filing. Among firms who indicate interest in e-filing, a randomly selected group will be provided with a free e-token, free registration for e-filing and training on how to use the system. Another group will be provided the e-token and free registration only, while a third group will be provided with training and information only. It should be noted that while the GoT has eliminated the cost of e-tokens, this evaluation tests the effect of eliminating the 'hassle factor' of obtaining the token and registering for the new system. The study will provide evidence of impact on the tax behavior and compliance costs of firms as well as their experiences and perceptions of corruption in tax administration. It will also explore the spillover effects on third-party firms whose VAT sales and purchases, or incomes (interest, dividends, royalties) are electronically reported by the firm. In addition, the study will assess the impact of e-filing on tax administration costs of the government.

For feasibility reasons explained, the RBA study will not involve randomization, but rather will comprise intensive data analysis to observe the changes that occur after the implementation of the new system, specifically: the compliance of inspectors with RBA protocol, the results of audits and the perceptions of firms regarding corruption and the fairness of audits.

2. Background

- Provide a brief overview of the country context and the motivation for implementing the proposed intervention within this context, drawing from relevant country statistics and literature.

Tajikistan is a low-income (IDA) country with a GNI per capita of $800 in 2011. While the country enjoyed strong economic growth rates from 2000-2008, the global crises brought GDP growth to a low of 3.9 percent in 2009. However, the country has bounced back and saw a 7.4 percent growth rate in 2011. Still, the country depends largely on remittances and agriculture and private sector investment is low—estimated at just 5% of GDP.[1]

Tajikistan has one of the lowest rankings on the Ease of Paying Taxes (178/189) and ranks 143/189 on the overall Ease of Doing Business in 2014. Most firms have monthly filing obligations for five categories of taxes (social tax, personal income tax, corporate income tax, road users' tax and value added tax). In the absence of e-filing, businesses submit their declarations in person at local tax offices with otherwise productive time spent waiting in line for multiple checks and signatures. The introduction of e-filing in this context has the potential to transform the tax administration process and thus reduce the tax compliance burden which constitutes a critical component of the business environment.

Corruption is also a major concern in Tajikistan. Enterprise Survey 2008 reports that 33 percent of firms expect to give gifts in meetings with tax officials and nearly 45 percent expect to give gifts to any public officials to 'get things done'; CPIA rates Tajikistan as 2.5/6 in its transparency, accountability and corruption in the public sector. E-filing is very relevant in this context because it presents an opportunity to reduce the frequency of interactions between taxpayers and tax officials and thus minimize opportunities for rent-seeking behavior. That is, in conversations with the private sector, as well as the experience of the operations team in Dushanbe, it is apparent that visits from tax officials provide firms with an opportunity to negotiate a deal on their tax obligations. The motivations vary from tax evasion to simplification of the tax calculation for firms with low skills in accounting.

- If the study is linked to a WBG project, provide a brief overview of the project's objective and relevant work streams.

The two components of this study (e-filing and RBA) are aspects of the Investment Climate Team's broad project with the Tax Committee in Tajikistan to improve different aspects of tax policy and administration.

The IFC provided support to the Tax Committee and stakeholders from the business community in crafting a new tax code that went into effect on January 1, 2013. The new code contains a number of reforms aimed at reducing compliance costs for businesses and stimulating business formalization and growth. Some of these reforms include: reducing filing frequency; combining related filings into a single form; redesigning tax forms; eliminating nuisance taxes that

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[1] World Bank. Tajikistan Country Overview

are levied on the same base (turnover); lowering thresholds for presumptive taxation and simplified taxation; harmonizing VAT and simplified tax thresholds. This project will focus on evaluating two elements of this overall program: the expansion of opportunities for e-filing and the introduction of risk-based audits.

Besides the above mentioned Investment Climate activities, the World Bank is engaged in a US$18 million (IDA) Tax Administration Reform Project (P127807) from 2013- 2017 that is aimed at reforming tax administration in Tajikistan to become more efficient and effective in collecting revenue, enhancing the level of voluntary compliance, and improving the quality of taxpayer services. A major component of the program is to invest in information technology systems. One aspect of this initiative is the introduction of electronic kiosks across the country to facilitate electronic filing for those without internet access. The kiosks are currently planned to be introduced in 2015 and would serve as a valuable complement to the interventions examined in this study.

3. Intervention
- Describe the intervention that you propose to evaluate including the implementing agency's intended beneficiaries and outcomes.

A. *Electronic Filing*

The first intervention for evaluation is the introduction of electronic filing in Tajikistan. The new tax code (Article 51.12) provides taxpayers with the option of submitting tax declarations in person, by mail or in electronic format.

The Tax Committee has several motivations for the introduction of e-filing:

- *To improve service delivery* and eliminate long wait times for submission of declarations, and resultantly promote voluntary compliance and *increase tax revenues*
- *To reduce corruption* by limiting the amount of interactions between taxpayers and the Tax Committee
- *To improve the quality of tax records* by reducing the mistakes made by clerks with large data entry burdens
- *To improve the efficiency of tax administration* by releasing officials from routine work to focus on higher value activities.

As such, the intended beneficiaries are as follows:

- *Taxpayers who adopt e-filing* will benefit from lower compliance costs and less uncertainty surrounding tax filing and payment. *Taxpayers who do not e-file* will also benefit indirectly from having a more efficient tax administration
  - o *Female taxpayers* are particularly expected to benefit from improved tax administration. Enterprise Survey 2008 indicates that firms managed by women are twice as likely as firms managed by men (32 percent compared to 15 percent) to consider tax administration a major or very severe obstacle to business operations

- ***The government*** will benefit from lower administrative costs
- ***The entire population*** is also expected to benefit as a tax administration system that collects revenue more efficiently is better able to fund the national budget and support publicly funded infrastructure investments.

Electronic filing software was developed and introduced in Tajikistan in 2012. The program is administered by the State Union Center for Programming within the Tax Committee. Taxpayers wishing to register to be eligible to e-file submit to the Tax Committee two signed agreements (one between the Tax Committee and the tax payer and the other between the service provider and the tax payer). In the first year of enrollment, the taxpayer also was paying an $80 fee ($70 for individual entrepreneurs), half of which was a payment for the software and electronic signature e-token, and the other half of which is for technical support. In subsequent years, only the $40 fee for technical support was to be paid. This registration fee was relatively expensive—about 47 percent of small and medium businesses earn less $80 or less in profits monthly (Enterprise Survey 2008)—and the fee stood in contrast to free provision in many countries. In this light, the GoT began to provide the tokens at no charge starting in late 2013.

To encourage e-filing take-up, the tax authority has conducted public information campaigns and trainings for business associations and previously offered a $10 discount off the e-filing token fee for individual entrepreneurs, and subsequently offered the tokens at no charge. However, take-up remains lower than expected. (reaching 2000 firms[2] by November 2013) and the government is interested in understanding which measures would increase utilization.[3] In addition, the evaluation will shed light on the extent to which the anticipated benefits of e-filing adoption are being realized.

Interviews with business owners as well as Tax Committee officials indicate that firms are not using e-filing for a variety of reasons which include:

i) **Lack of Awareness**: Some firms are unaware of the option to file electronically and the offer of the free token.

ii) **Lack of Trust**: Some firms are aware of the system but do not have confidence in it. For instance, there have been problems syncing electronically submitted information with the central tax database; other firms are concerned about the security of information submitted online; other firms worry that e-filing will increase their likelihood of being audited

iii) **Hassle factor of obtaining the token and registering**: Some firms would like to e-file but are deterred by the hassle of obtaining the token and registration for the system, which involves a visit to the Tax Committee.

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[2] For this study, the firms considered are legal entities (i.e. not individual entrepreneurs). This group includes taxpayers under the simplified regime as well as those in the general regime, the threshold occurring once the gross income of a firm exceeds 500,000 somoni (approximately $100,000).

[3] The system has been continuously revised to address concerns from tax payers. For instance, previously, taxpayers were still required to visit the tax office to receive a stamp on declarations submitted online and not all declarations could be submitted online; these issues have been corrected. Also, the registration fee was discounted by $10 for individual entrepreneurs to encourage more of them to adopt the system.

iv) **Supply Side Problems:** In some cases, firms are willing to e-file but Tax Committee does not register them in a timely manner. Over the last year, this has been partly due to the Tax Committee slowing down the roll out in order to correct identified glitches in the system

v) **Lack of Infrastructure**: Some firms would like to e-file but are not able to due to a lack of access to needed infrastructure and skills (e.g. computers, internet)

vi) **Preference for Direct Interaction with Inspectors**: Some other firms do not wish to file online because they prefer to deal directly with the same tax inspector on a regular basis for the submission of their tax declarations. This could be for benign reasons such as having someone crosscheck their submissions, or for purposes of attempting to evade tax obligations

The experimental setting and design aims to address these barriers. The treatment incentives offered will specifically target the first three barriers by providing information to increase awareness and trust in the system, and by offering (and delivering) free e-tokens and registration. The logistical support offered for registration will help mitigate the supply side problems.

Furthermore, the experiment will be limited to the capital city, Dushanbe, where infrastructure constraints, such as electricity supply and internet access, are less severe. For example, 38 percent of firms interviewed in the Enterprise Survey 2008 had high speed internet on their premises and 57 percent communicated with clients and suppliers by email; in comparison, these figures were, 14 percent and 29 percent for the rest of the country. Given the continuous technological diffusion over the last five years, the internet prevalence levels are likely to be even higher in 2013 and a baseline survey will provide evidence on this.

Lastly, while the experiment cannot directly change preferences for dealing directly with tax inspectors, the surveys will collect information on taxpayers' current practices to explore the importance of this factor in predicting adoption.

B. Risk Based Audits

The second intervention for evaluation is the introduction of **risk-based audit selection (RBA).** The goals of RBA are aligned with those of e-filing and include:

- *To reduce corruption* by limiting the discretion of tax inspectors in selecting firms to be audited
- *To improve the efficiency of tax administration* by identifying and auditing companies that are more likely to be evading substantial amounts of tax, thereby *increasing revenue collection*
- *Improve taxpayer confidence* in the fairness of audits and *lower audit-related tax burden* for the average business.

Targeting inspections on high-risk firms is an accepted international best practice, which allows administrations with limited human and financial resources to use them most effectively. Countries

such as Georgia, Jordan, Poland and Ukraine, among others, have implemented risk-based inspections with this goal in mind.[4]

The existing practice for conducting audits is that twice a year, the Tax Committee develops and publicizes a list of firms to be audited over the next six months (henceforth referred to as a "manual list"). These lists are typically developed with extensive input from local inspectors who can exercise significant discretion within some broad limits (for example, firms may not be audited more often than once a year for large firms and once every two years for small and medium firms). The critical difference under RBA is that these lists will no longer be primarily based on the selection of inspectors. Instead, firms will be selected for audit using a computer algorithm that assigns to each firm a risk profile based on the firm's characteristics and an index of risk developed using a variety of data sources available to the Tax Committee, including the results from past tax audits.

An important institutional feature is that RBA applies only to the subset of audits described above, that is, "scheduled comprehensive audits." There are in addition several other types of audits such as: unscheduled comprehensive audits, targeted audit (e.g. related to VAT refunds), counter audit (initiated during the audit of a related third party), registration audit, cash register audit, excise goods audit. There are also in-house control measures where by a tax inspector can summon a taxpayer to provide additional evidence or corrections to submitted tax reports based on observed errors in the submitted report.

The multiplicity of audit channels and the fact that the same inspector would typically conduct several types of audits makes a randomized evaluation impractical as inspectors will have significant opportunity to substitute their effort across different kinds of inspections (and firms often are unaware of differences between different types of inspections). For example, it is possible that firms that are not on the RBA-generated list of firms may become more prone to discretionary inspections by inspectors, thus violating the experimental protocol. Nevertheless, a pilot RBA intervention in one of the districts in Dushanbe presents an opportunity to carefully study the changes that occur in practice following the introduction of the program.

4. Theory of change
- Present an outline of the hypothesized causal chain through which the intervention is expected to lead to intermediary and longer-term outcomes.
- Summarize existing literature on the links identified in the causal chain.

A. E-filing

For the adoption stage, the theory of change is that firms that receive the incentives offered in this study will adopt e-filing at a higher rate than firms that do not receive incentives because the incentives will remove identified barriers to adoption. Specifically, the incentive treatments will address the low levels of knowledge and trust in the e-filing system, as well as eliminate the hassle factor of obtaining the token as well as provide logistical support with registration.

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[4] Investment Climate Advisory Services, World Bank Group. "Inspections Reforms: Do Models Exist?" 2010.

There is considerable research on factors affecting the adoption of e-filing (primarily from survey data) as several countries in both the developed and developing world have introduced e-filing over the last two decades. Similar issues such as low levels of knowledge and trust, low access, and fear of audit have been identified as barriers in other settings.[5] In the United States in 2008, the budget for marketing the advantages of e-file and Free File to promote adoption among taxpayers was $2.5 million. However, there is limited evidence of the causal impact of such promotions on adoption, a gap that this study can fill.

For the impact stage, the theory of change is that the adoption of e-filing will lead to fewer interactions between tax payers and tax officials, which will result in fewer opportunities for rent seeking behavior between firms and tax officials. The primary impact expected is that this will reduce the level of corruption that occurs and improve the corruption perception of firms. Several studies suggest that fiscal corruption may be reduced if the interaction between the taxpayer and the corrupt official is limited.[6] However, it is also possible, especially at the early stages of implementation, that tax officials may still require meetings and verifications of the declarations filed online, resulting essentially in a duplication of efforts online and offline. Midline and endline surveys will focus on detecting this occurrence.

Some secondary and more tenuous potential impacts are that the adoption of e-filing may have real impacts on firm performance such as productivity, investments and profits. The relationship between corruption and business climate uncertainty is documented in many studies: corruption and higher uncertainty raise the effective cost of investment and resultantly reduce investments.[7] Therefore, if due to this intervention, firms operate with less uncertainty about their tax payments, they may make more investments and experience greater growth. In addition, by spending less time on tax compliance, firms can devote their time to more productive activities and increase their profits. Increased profits and firm growth would then lead to higher tax payments by the firm (an outcome of significant interest to the government). Alternatively, higher tax payments could also be directly due to a lower incidence of corruption between the taxpayer and tax inspector, and a resultant increase in voluntary compliance by the firm.

This study will examine both the intermediate outcomes and final impacts with the caveat that given the limited number of firms available for the study and the relatively small cost-savings, the impact on the secondary outcomes—especially firm growth, productivity and investment—are tenuous and therefore harder to detect. In addition, e-filing is only one (arguably minor) factor affecting firm outcomes. However, to the extent that all other factors are on average the same for treatment and control firms, we can attribute observed differences to the adoption of e-filing.

In addition to the above impacts on firm behavior and investment climate, the study will also explore the impact on administrative efficiency. The theory of change here is that fewer interactions between firms and the tax authority will lead to lower administrative costs in processing tax declarations and greater organizational efficiency. Lastly, e-filing has the potential to

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[5] Internal Revenue Service (IRS). 2008; Hussein et al (2011)
[6] E.g.Richardson (2006), Toye and Moore (1998), Alfiler (1986)
[7] For example, World Bank (2000, 2001); Mauro (1995, 1997)

affect not only firms that use it, but also other firms with whom they do business. When firms submit their VAT declarations electronically, they also provide information on other taxpayers: their suppliers and clients. Similarly, electronic declarations also provide information on tax obligations of other taxpayers who obtain specific incomes such as interests, dividends, and royalty. As such, one additional channel of impact of e-filing that this study will explore is the spillover effects on the compliance and reporting behavior of third-party taxpayers.

Figure 1: Theory of Change[8]
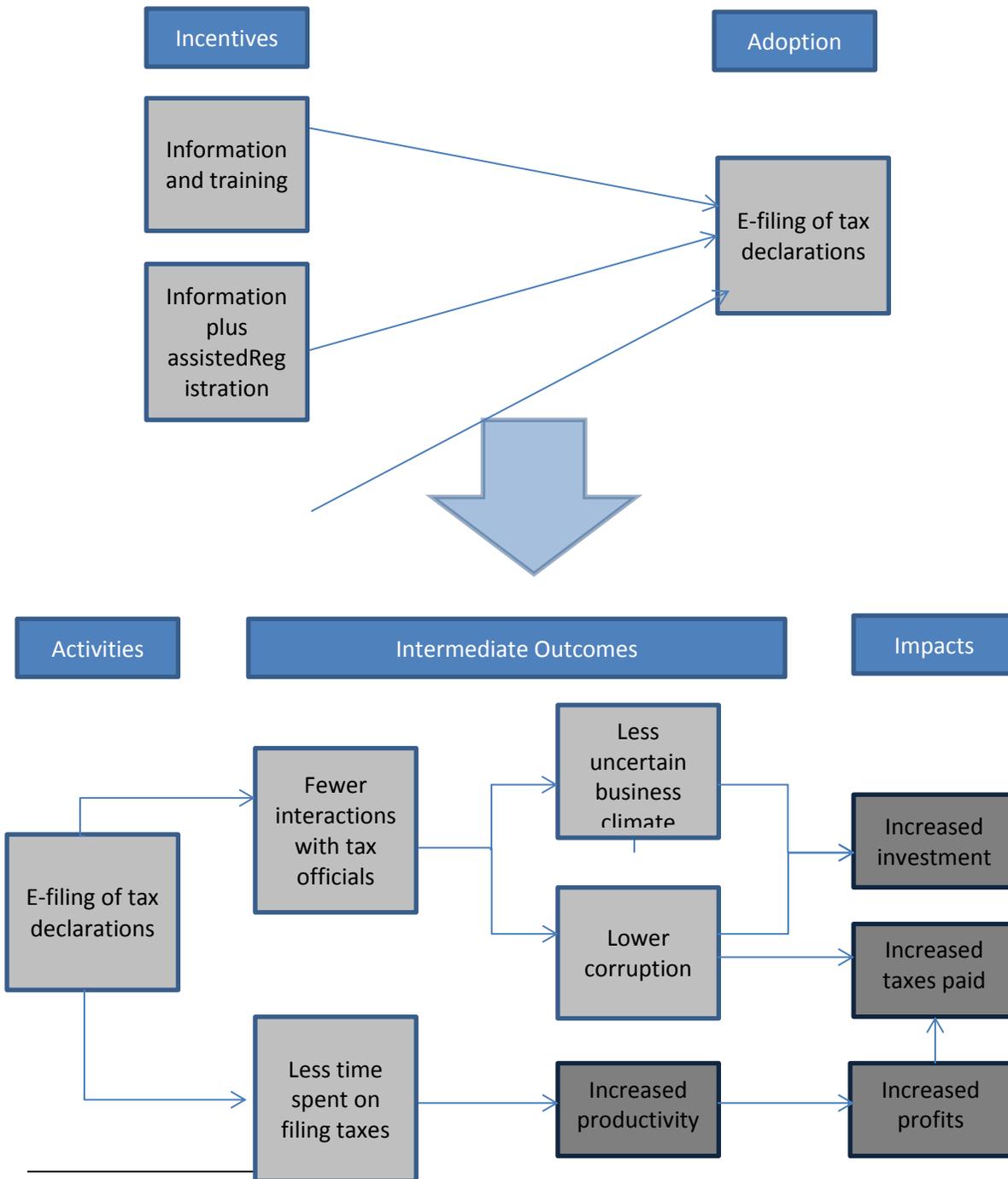
[8] Dark shaded boxes indicate secondary and more tenuous outcomes.

B. *Risk-based Audit*

Given the previously discussed overlap between audit selection under RBA and potential exposure to other types of inspections, this evaluation will not claim to detect the causal impact of RBA but rather will seek to better understand system-wide changes associated with the process.

The change in the risk profile of audited firms after the introduction of RBA will depend on at least three factors: the quality of the existing manual selection process, the accuracy of the computerized risk algorithm, and the compliance of inspectors with the RBA protocol. The more biased the current manual selection process, the more accurate the computer algorithm is at detecting evasion-prone firms, and the more compliant inspectors are with the RBA protocol, the greater will be the change in the riskiness of firms selected for audit under RBA.

Focusing audits on more risky firms is subsequently expected to increase the amount of evasion detected during audits, reduce audit-related burdens for the average firm and increase the confidence of taxpayers in the fairness of the system. However, these impacts are subject to the actions of inspectors in a variety of ways:

(i) **Effort level and detection of evasion**: Although inspectors may lose discretion over the selection of firms audited, they will continue to determine, in large part, the amount of effort to exert in each inspection and the eventual level of evasion detected. As a result, if inspectors wish to discredit RBA selection in the long term, they may adjust their efforts to detect low levels of evasion among RBA-selected firms. Since inspectors typically give significant input into the manually selected list, it would be difficult to prevent them from knowing which firms were selected by RBA.

(ii) **Substitution to/from discretionary audits and spillover effects:** The average firm may not experience a reduction in audit-related tax burden if firms that are not selected by RBA become more prone to discretionary audits by inspectors. As a result, if firms do not observe changes in the level of audits experienced, their perceptions of corruption and of the fairness of the audit process may remain unchanged. On the other hand, if inspectors are faced with a target level of revenue to generate and RBA enables them to reach this target faster, they may reduce the amounts of discretionary audits conducted and thus reduce the average audit burden of firms. Firms within the geographical proximity of firms scheduled for comprehensive audits (RBA or manual) may be particularly subject to these spillover effects.

5. Evaluation design
- List the main evaluation questions to be addressed by the proposed study. Separate the evaluation question related to the overall impact of the intervention from questions related to testing different mechanisms or innovations to improve the effectiveness of the intervention.

A. E-filing

As previously noted, this study on e-filing will evaluate two broad sets of questions. The first set of questions examines factors affecting the **adoption** of electronic filing in Tajikistan:

i. What is the impact of providing information about e-filing on adoption? What is the additional impact of eliminating e-filing registration and obtaining the e-token, eliminating the hassle of these activities for the firm?
ii. What is the relationship between a firm's risk level for tax evasion (as measured by the RBA index) and its adoption of e-filing?
iii. What other characteristics of a firm are associated with adoption (such as degree of comfort with technology and use of other information technologies, trust in government, size, industry, gender of management, etc.)?

The second set of questions examines the **impact** of e-filing:

i. What is the impact of e-filing adoption on corruption?
    o Measured by: informal payments or gifts to tax officials and perceptions of corruption
ii. What is the impact of e-filing on compliance costs and tax behavior of firms?
    o Measured by: amount of taxes filed and paid, declarations and payments made on time, penalties and audits faced, time and monetary costs of fulfilling tax obligations, and number of meetings with tax officials.
iii. What is the impact of e-filing on tax behavior of third-party taxpayers whose sales, purchases and/or incomes are reported by the firm?
iv. What is the impact of e-filing on tax administration processes?
    o Measured by: time taken to process returns and number of amendment filings made to correct calculation mistakes

B. Risk-based Audit

The study on RBA evaluates the following questions related to the effects of the new system:

i. How does the distribution of firms selected for audit change after the introduction of RBA?
    o Measured by: the extent of overlap between RBA and manual lists; the difference in risk index of firms on RBA and manual lists.
ii. How do 'hit rates' (i.e. detection of misreporting) by the Tax Committee change after the introduction of RBA?
    o Measured by: a binary variable of detection of tax avoidance and tax evasion during audits; the percentage difference between the tax obligation and the declared amount for each type of declaration.
iii. How does the behavior of inspectors change after the introduction of RBA (i.e., compliance with RBA protocol, spillover and substitution effects)?

- o Measured by: frequency and type of inspections conducted on firms on RBA list, manual list and neither list (with particular consideration given to firms in the geographic areas proximate to firms in either list)
  iv. How does the behavior of firms change after the introduction of RBA?
    - o Measured by: tax payments of firms
  v. How does the fairness of audits and corruption in audit process change after the introduction of RBA?
    - o Measured by: Perception of firms regarding fairness of audits and corruption

- Describe the main features of the proposed study and how it addresses the evaluation questions, including the following when applicable:
  - o Data collection methods and instruments (including potential use of existing or administrative data)

To answer the above questions, both studies will rely on three main sources of data:

i. ***Administrative data from the Tax Committee***: This data will be collected from 2010 through the implementation period. To ensure timely availability of this data, the operations team will insert a clause into its cooperation agreement with the GoT to request the following data. It includes:
   a. Monthly tax declarations and payments by firms which report: turnover, number of employees, profits or losses, value of imports and exports, total wages of employees and amount of taxes due (including VAT, corporate income tax, road users' tax and social taxes), income paid to other firms (interests, dividends, and royalty). The data is also expected to include for each return: whether it was filed electronically, the date submitted, date processed and amendments filed.
   b. Firm characteristics such as date registered, size, ownership structure, industry and region, registration for e-filing
   c. Occurrence and results of recent inspections/ audits, tax penalties assessed and paid

ii. ***Firm survey data:*** A baseline and endline survey will provide information on the experiences of firms with the tax administration process, covering both the e-filing intervention and the RBA study, including:
   a. Firm perceptions of corruption in the system, compliance costs, assessment of the performance of tax officials and the Tax Committee, trust in Tax Committee and overall government. The survey will use measures similar to existing World Bank Groups surveys on these topics
   b. Firm characteristics and economic behavior (to complement and cross check administrative data provided by the Tax Committee)

     c. Firm indicators that predict e-filing use such as comfort with technology and regular use of information and communication technologies[9]

     d. Firm reports of inspections/audits experienced, results of audits, tax penalties assessed and paid

  iii. **Qualitative data.** In addition to the data above, there will be extensive interviews, focus groups and piloting with tax inspectors and firms before, during and after the roll out of the project to understand channels of impact and interpretation of findings, especially those related to the topic of corruption.

Besides the information collected specifically for this project, background information on enterprises in Tajikistan and their experiences with tax administration will also be obtained from the following surveys conducted within the past five years: Enterprise Survey 2008, Business Environment in Tajikistan as Seen by Small and Medium Enterprises 2009, Tax Service Capacity Strengthening Project Taxpayer Perception Survey2010, and Doing Business 2013 & 2014.

    o Identification strategy

A. *E-filing*

To provide evidence on the relative effectiveness of incentives in promoting the ***adoption*** of e-filing, this study will provide two types of incentives to randomly selected groups of firms and observe the impact on adoption. These incentives are designed to address key barriers to the adoption of e-filing.

There are three groups of taxpayers depending on incentives provided to test adoption of e-filing and to survey compliance costs, tax behavior and perception about tax authority associated with filing of tax reports. All firms will be invited using the same method and the same invitation letter and description. Upon arrival at the site, they will be randomly assigned to one of the following groups. The groups are as follows:

  A. Taxpayers will be provided general information about taxation information, training about e-filing, and the survey firm will obtain the e-token and conduct their registration for e-filing. There will be at least 600 taxpayers in total. Taxpayers will fill in a survey questionnaire at the beginning of the training;

  B. Taxpayers will be provided general information about taxation and training about e-filing. There will be at least 300 taxpayers in total. Taxpayers will fill in a survey questionnaire at the beginning of the training;

  C. There is a control group of taxpayers - at least 600 or more entities in total. This group will not receive any incentive mentioned above but will be invited to Tax committee to receive general information about taxation. Also these taxpayers will be asked to fill in a survey questionnaire using the same means as for abovementioned groups.

For adoption, the identifying assumption is that due to the randomized assignment of firms to the four groups, any observed differences in adoption are due to firms in the treatment groups

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[9] Some authors e.g. Walsh and White (2000) have modeled e-filing adoption using a Technology Acceptance Model.

receiving the incentive to e-file. The fact that firms are randomly assigned upon arrival at the training site eliminates a self-selection bias of firms that are more interested in e-filing than others. The study will compare the increase in adoption due to the provision of information to that due to the additional provision of assisted registration.[10]

B. Risk-based Audit

The RBA analyses will be based on a pilot study. In one of the districts in Dushanbe, a computer-generated RBA list of 150 firms to be audited will be developed parallel to the manual list of 150 firms. The initial outcome will be to observe the extent of the overlap that occurs between 150 firms on the RBA list and those on the discretionary list.

The firms that occur on both lists will remain on the final list of firms to be audited. Half of the firms that occur on the RBA list but not on the manual list will be randomly selected and used to replace a random half of the firms that occur on the manual list but not the RBA list. For instance, if there are 40 firms that occur on both lists, the final list of 150 will include these 40 firms, 55 randomly selected firms from the RBA list and 55 randomly selected firms from the manual list.

The evaluation questions will be analyzed by comparing outcomes across these categories of firms, as well as other firms within the district that are not included on either the manual or RBA list.

o Sampling strategies

The evaluation will draw from the universe of legal entity firms in Dushanbe, about 5700 firms. The study will exclude the 2000 firms that already e-file as well as the 270 firms in the Large Taxpayer Unit (25 percent of whom already e-file). In addition, given the high level of firm entry and liquidations, there will be an initial screening to confirm that only firms that are still operating are included in the study. Firms selected for audit in the RBA pilot district (by either the RBA or manual lists) will be excluded from the e-filing randomization protocols.

Previous World Bank Group surveys in Dushanbe reveal that it is often difficult to reach target respondents for surveys due to a poor quality of contact information on official listings. For example, the Business Environment Survey 2009 was able to reach only 32 percent of target firms for face-to-face interviews. However, it had a fairly high cooperation rate (percentage of contacted enterprises who agreed to respond) of 89 percent. By working closely with the Tax Committee to locate firms, we expect to be able to reach about 2000 existing taxpaying firms. As a caveat and note on external validity of the study, the results of the study will be largely applicable to existing taxpaying firms.

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[10] Note that during preparation of this IE, the GoT decided to eliminate the cost of the e-token required to e-file. However there remains information asymmetry and a strong 'hassle factor' to obtaining the token and registration, so the team decided it still a valid question to test whether training and assisted registration will encourage take-up.

When the survey company calls a firm from the list provided by the Tax Committee, it will invite the firm to attend a seminar on tax compliance. The firm will be previously randomly assigned to either one of the treatment groups or the control group. Upon arrival at the seminar (between 20 - 40 firm representatives per seminar) the firm will first be presented with the baseline survey. The survey firm will guide all participants in filling out the survey correctly and answer any questions. This will be followed by the treatment or the control treatment (general tax information only.)

Figure 2: E-filing Experimental Design
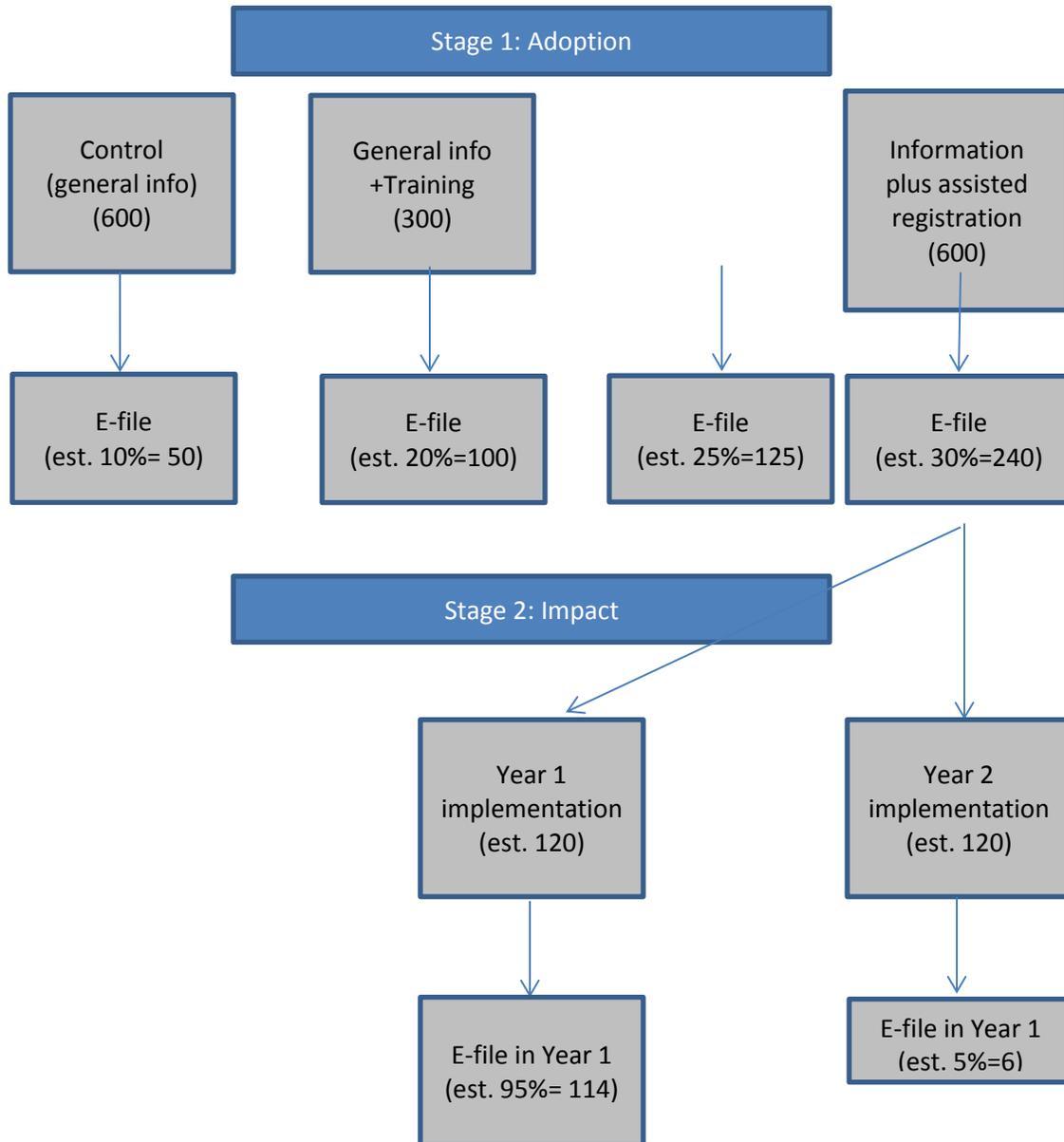
        o   Model specification

A. E-filing

Equation (1) below will examine the relative impact of the two treatments in promoting take-up:

$$D_i = \beta_1 T_{1,i} + \beta_2 T_{2,i} + \gamma X_i + \varepsilon_i \qquad (1)$$

where D_i is the dummy variable of whether a firm signs up to e-file, $T_{1,i}$ and $T_{2,i}$ are the indicators for the Information and training treatment and the Information plus Free Registration treatments respectively, and X_i are baseline firm characteristics. β_1 and β_2 estimate the causal effect of receiving incentives on take up and the difference between them, $\beta_2 - \beta_1$, estimates the differential impact of the provision of free registration in addition to the information. Among the X_i the particular firm characteristic of interest will be the evasion risk index of the firm as determined by the Risk Based Audit, that uses tax data and prior audit outcomes to indicate firms that are most at risk of evading taxes. Other indicators of technology adoption and firm characteristics will also be analyzed.

Equation (2) will use a difference-in-difference approach to examine the impact of e-filing on firms that are randomly assigned to receive implementation in year 1 (from all the firms that signed up for the free registration offer):

$$Y_{i,t} = \alpha W_i + \lambda(W_i * post) + \rho X_i + \delta_t + \varepsilon_i \qquad (2)$$

Where Y_{it} is an outcome variable at time t (typically monthly filings and payments), W_i is an indicator for assignment to receive implementation in year 1, and $(W_i * post)$ is an indicator for this treatment group once they are registered for e-filing. δ_t are month fixed effects. α represents the Intent to Treat causal estimate of being granted free e-filing registration for firms who have indicated interest in registering. However, compliance is unlikely to be perfect, i.e. the proportion of firms assigned to receive implementation in year 1 that start using the service (q_1) could be less than 1; also, a positive fraction (q_2) of firms not granted free registration until year 2 could choose to register themselves and pay the fee. One can then estimate the Treatment on Treated estimate by dividing α_1 by (q_1-q_2) and calculate the standard errors using an instrumental variable framework.

B. Risk-based Audit

Equation (3) below will be used to analyze the different outcomes:

$$R_i = \pi_1 L_{1,i} + \pi_2 L_{2,i} + \theta X_i + \varepsilon_i \qquad (3)$$

Where R_i are different firm outcome variables of interest earlier described, such as the risk index of the firm; the number, type and results of audits; firm perceptions of corruption, etc. $L_{1,i}$ and $L_{2,i}$ indicate whether a given firm is listed in the RBA or manual audit list. As a result, π_1 and π_2 capture the difference in the outcome variable for listed firms compared to unlisted firms and their difference, $\pi_1 - \pi_2$ measures the difference across the two lists. As before, X_i are firm characteristics, which will include in some specifications, distance to closest firm scheduled for an audit.

      o   Power calculations

For the first level of randomization for evaluating take-up of e-filing among a sample size of 1500 distributed across the three groups (as 500; 500; 500), as well as 800 in the control group, given a baseline adoption level of 35 percent, alpha of 0.05 and power of 0.80, the analysis will be able to detect a minimum effect of a 7.5 percentage point difference (0.23 of the standard deviation) between the information treatment group and the control group. Between the information/training treatment and the information/training plus free registration groups, it will be able to detect a minimum effect of a 4.5 percentage point difference (0.14 of the standard deviation).[11]

An estimated take up rate of 30 percent among those offered the free registration will yield 420 firms for the second stage randomization into two groups and an effect size of 0.27 of the standard deviation. Given the baseline rates and standard deviations for variables on which outcomes are available from Enterprise Survey 2008, some of the minimum detectable effects are as follows (taking into account imperfect compliance):

	Mean	Standard Deviation	Effect size	Minimum Detectable Effect (with non-compliance)
Number of interactions with tax officials	4.28	5.88	1.59	1.76
Occurrence of gifts/ unofficial payments during meetings with tax officials (1=yes, 0=no)	0.63	0.48	0.13	0.14

      o   Handling of spillover, John Henry, Hawthorne, and/or survey effects

In addition to the VAT and third party income spillover effects previously mentioned, the e-filing study will also assess location spillover effects on firms. Enumerators will record the address of firms during the survey and the data will be analyzed for impacts on untreated firms in the vicinity of treated firms. As earlier described, the RBA study will also seek to measure spillover and substitution effects.

To handle Hawthorne effects, firms in the control group at the e-filing take up stage will also receive placebo training to eliminate the possibility that effects are driven by receiving training/information regarding taxes. For John Henry effects, there is the risk that firms in the control group at the implementation stage may be more inclined to obtain the e-file service because they are denied the free registration for a while. However, the hassle factor of obtaining the token and registration should ameliorate this problem.

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[11] Optimal Design Software

     o   Risk and threats to internal and external validity

A major threat to the internal validity of the e-filing study will be differential **attrition** between the treatment and control groups over the one year implementation period of the study before the endline survey (particularly for outcomes that depend on responses from the survey). Furthermore, even random attrition will reduce the power of our results, so the sampling strategy takes into account this possibility by counting a sufficient number of firms. Strategies will be adopted in consultation with the survey firm to collect as much information as possible to increase the likelihood of finding the firms for the endline survey and ensuring a similar distribution of variables in each of the treatment and control groups.

A different type of attrition can occur from the fact that some firms that initially start using e-filing may stop using it. Monthly reports from the Tax Committee would detect this change in behavior and interviews will be conducted with affected companies to understand the change in behavior, including unanticipated impacts of e-filing adoption. However, the primary outcome from the study is the local average treatment of effect (LATE) of firms *assigned* to the treatment group as the instrument for take-up (i.e. regardless whether or not firms begin or continue to use the system).

In thinking about the application of these results to other contexts, the results will be particularly relevant in other developing countries with high baseline levels of corruption like Tajikistan, as well as places at a similar stage of technology adoption and internet penetration. However, considering that our sample is not a random sample of all firms, but rather is limited to those that have some taxpaying history (as we will obtain the initial contacts from the Tax Committee) and are located in the capital city, the results of the study will be most relevant to similar samples within other countries.

     o   Expected impact heterogeneity and diversity across population sub-groups (e.g., gender, income quintiles, etc.)

A major source of differential impacts could arise from firm size. Larger firms are more likely to already be aware of the service and are less constrained by the registration fees. In addition, larger firms may be more constrained from collusive behavior and tax evasion given the higher risk of exposure due to having more employees (Kleven et al 2009). Since less than 5 percent of firms are large firms, they are excluded to enhance homogeneity among the experimental firms. Among experimental firms, the analysis will explore heterogeneous impact by size and will stratify the randomization by the two types of firms in the sample (those under the simplified regime and the general regime). Heterogeneous impacts by the gender of the firm manager will also be explored given baseline differences in the burden of tax administration described in Section 3.

- Explain any ethical issues you believe are relevant to the proposed study and how you propose to address them. Discuss planning for human subject review and describe the data that will be used, collection method/sources.

All the firms involved in this study are legal entities and are therefore technically not subject to a full human subjects review. However, since some of the firms are quite small and information on the owners/ managers will be collected, the study will still be submitted for IRB review at the

researcher's institution. In addition, some of the data collected, such as firms' experiences and perceptions of corruption are quite sensitive with potential risk of repercussions if disclosed. The data will be kept strictly confidential with identifiers kept separate from the rest of the data and only used during merging the baseline and endline surveys. In addition, the tax records of firms contain sensitive information and will be treated with utmost data security and confidentiality in accordance with guidelines at the researcher's institution.

Another potential ethical concern is the random assignment of implementation of e-filing in the second stage as half of the firms will be delayed from receiving the service. However, these firms are free to sign up for the service independently without waiting for the free implementation.

6. Policy relevance and impact
- Describe the policy relevance of the proposed evaluation, which might include:
  - Alignment of the evaluation questions with national and international policy challenges. Why it is appropriate, necessary, feasible and likely to provide useful information at this point in time?

On a local level, Tajikistan recently introduced e-filing and this project will provide information desired by the tax authorities on the design of the project such as factors that will encourage take up by taxpayers. The risk-based audit analysis also presents a crucial source of learning for Tajikistan as it would help to understand key aspects of implementation such as actions of inspectors, and interactions with other avenues of tax control.

On a more global scale, corruption in tax administration is a significant problem worldwide and these two interventions will shed light on the role that the introduction of technology can play in addressing this problem. Many countries adopt e-filing systems primarily to reduce compliance costs and modernize tax administration. However, a potentially crucial benefit lies in its ability to disrupt collusion and/or other rent-seeking behavior between tax payers and tax officials. This intervention will provide valuable evidence on this potential channel of increasing transparency and reducing corruption in tax administration. Similarly, many countries are interested in implementing RBA systems to reduce discretion of tax officials and this study will highlight potential impacts of RBA as well as challenges to its implementation.

  - Learning elements in program design and implementation.

This is the first study (to the best of our knowledge) that studies the adoption and impact of electronic filing using a randomized control trial. It therefore sheds light on the different implications for firms on not only tax behavior but other economic outcomes for firms.

In addition, this project will be the first experience (to the best of our knowledge) of the Tajikistan government with obtaining causal evidence about a policy intervention and the results could cultivate an appetite for more evidence-based policy.

      o Explain the effort made to consult with the internal and external client and others on the design of the proposed IE.

There have been extensive consultations with the Tax Committee and the Operations Team of the Investment Climate Team in Tajikistan to define the evaluation questions of interest and explore the institutional and logistical feasibility of the experiment design.

In November 2012, during the **Innovations in Investment Climate Reforms conference in Paris**, the Chairman of the Tax Committee and tax officials worked closely with the Investment Climate Team to consider potential interventions around the evaluation of recent tax reforms. The outcome was to consider Risk Based Audits and E-filing as two potential areas for evaluation.

The team also engaged an Assistant Professor at Harvard Business School with prior work on randomized experiments in tax administration in a developing country context and a PhD Candidate in Public Policy at Harvard Kennedy School doing research on taxation in developing countries. They later joined the team as the Research Adviser and Research Analyst respectively.

In March 2013, the Task Team Leader of the project and the Research Analyst went on a **mission to Tajikistan for further consultations with the Tax Committee** senior management together with the Operations Team. The goal of these meetings was to better understand the RBA and e-filing systems and to assess the scope for a rigorous evaluation of both projects. The mission also included meetings with several members of the private sector including business owners, heads of business associations, tax consultants and auditing companies. These meetings were to better understand the tax administration experiences of businesses specifically around tax filing, tax payment and audits. There were also preliminary consultations with two survey firms in Dushanbe to assess the feasibility of potential survey designs.

- Describe the potential policy impact of the proposed evaluation and the extent to which the study may influence national, regional, and international policy. Please describe:
  - Your policy influence objective(s).

This project seeks to:

i)   **Influence the administration of e-filing in Tajikistan:** It will provide evidence on the nature of incentives that promote adoption. It will also provide evidence on the externalities associated with the adoption of e-filing through the impact on third-party firms, which presents an additional rationale for subsidizing the service.

ii)   **Influence the administration of risk-based audits in Tajikistan:** It will provide a careful understanding of different changes that occur in the audit process and results after the introduction of RBA to guide the expansion of RBA into the rest of the country, and potentially, to other categories of tax control.

iii)   **Inform the tax audit process**: The results will indicate whether firms that are more at risk of evasion are more or less likely to use electronic filing. If the results show that

risky firms are less likely to e-file, it would caution against concentrating risk assessments on electronically submitted declarations even if it is cheaper to do so.

iv) ***Inform the policies of other countries regarding e-filing***: By providing evidence on the impact of e-filing on firms' compliance costs and corruption in tax administration, the study will guide the policy making process in other countries considering adopting e-filing.

- o The primary target audience (especially the policy stakeholders) for this study.

The Tax Committee of the Republic of Tajikistan is the primary target audience.

- o Strategies for engaging with policy stakeholders.

The study is being designed and will be implemented in close cooperation with the Tax Committee. The Operations Team in Tajikistan is in regular communication with the Tax Committee and will continue to solicit their input and support throughout the design and implementation of the project.

- o The potential risks to policy impact.

There is the possibility that even if the study shows a significant impact of the elimination of the hassle of registration and obtaining the e-token on adoption, the Tax Committee may lack the capacity to accompany all interested taxpayers through the registration and e-token process.

7. **Work plan and deliverables (Timeline)**

Milestones and Key Deliverables	Deliverables	Completion Date
Preparation of concept note	Note	Done
Peer reviewed methodology note	Note	Done
Data collection plan	TORs Questionnaire	March 2014 (baseline) – June 2014
First data analysis	Note Presentation Data file Do files	July – October 2014
Implementation of intervention aligned to evaluation	Rollout plan Monitoring reports verifying treatment and control status	June-November 2014
Midline data collection (Tax Authority administrative data only)		March - June 2015
Endline survey	TORs Questionnaire Rollout plan Collection of final batch of administrative data	June – September 2015

Final data analysis	Technical note Policy note Data file Do files	October – December 2015
Dissemination of findings	Presentation	January 2016

8. Evaluation team and peer review process

- Include names and roles of internal WBG staff, government counterparts, lead researcher and research team, sector specialists, etc.

  - A. Soliev, First Deputy of the Chairman of the Tax Committee

  - Mr. Malilov, Tax Records Department: obtain data

  - Khurshed, Chair, State Union Center for Programming within the Tax Committee: Unit that implements e-filing

  - TBD: Counterpart for the WBG team to organize firm-level surveys (the team has identified several candidate firms and will choose one among them to implement the surveys)

  - Dmitry Pyatachenko, Operations Officer, Project team, Dushanbe

  - Alisher Isaev, Operations Officer, Project team, Dushanbe

  - Christopher Miller, Program Manager, Dushanbe

  - Emil Abdykalykov, Project Manager of Regional Tax Simplification Project, Bishkek

  - Jan Loeprick, Global Tax Simplification Team, Vienna

  - Penelope Fidas, Impact Evaluation Team, Washington, DC

  - Dina Pomeranz, Research Adviser, Harvard Business School

  - Oyebola Olabisi, Research Analyst, Harvard Kennedy School

  - Saroj Jha, WB Central Asia Country Director

  - Moazzam Mekan, IFC Central Asia Country Manager

  - Marsha Olive, Country Manager, WB, Dushanbe

  - Munawer Khwaja, WB Tax Administration Project TTL, PREM

- Recommended peer reviewers that the team considers will add the most value to this study.
  Lorenzo Casaburi, PhD candidate, Harvard University
  Alvaro Gonzalez, World Bank Group
  Utkirdjan Umarov, World Bank Group

9. Budget

- Please provide the estimated budget using the excel template attached.

Total: $280,000

10.   References

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