Final report

Motivating bureaucrats: Autonomy vs performance pay for public procurement in Pakistan

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September 2017

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MOTIVATING BUREAUCRATS: AUTONOMY VS PERFORMANCE PAY FOR PUBLIC PROCUREMENT IN PAKISTAN

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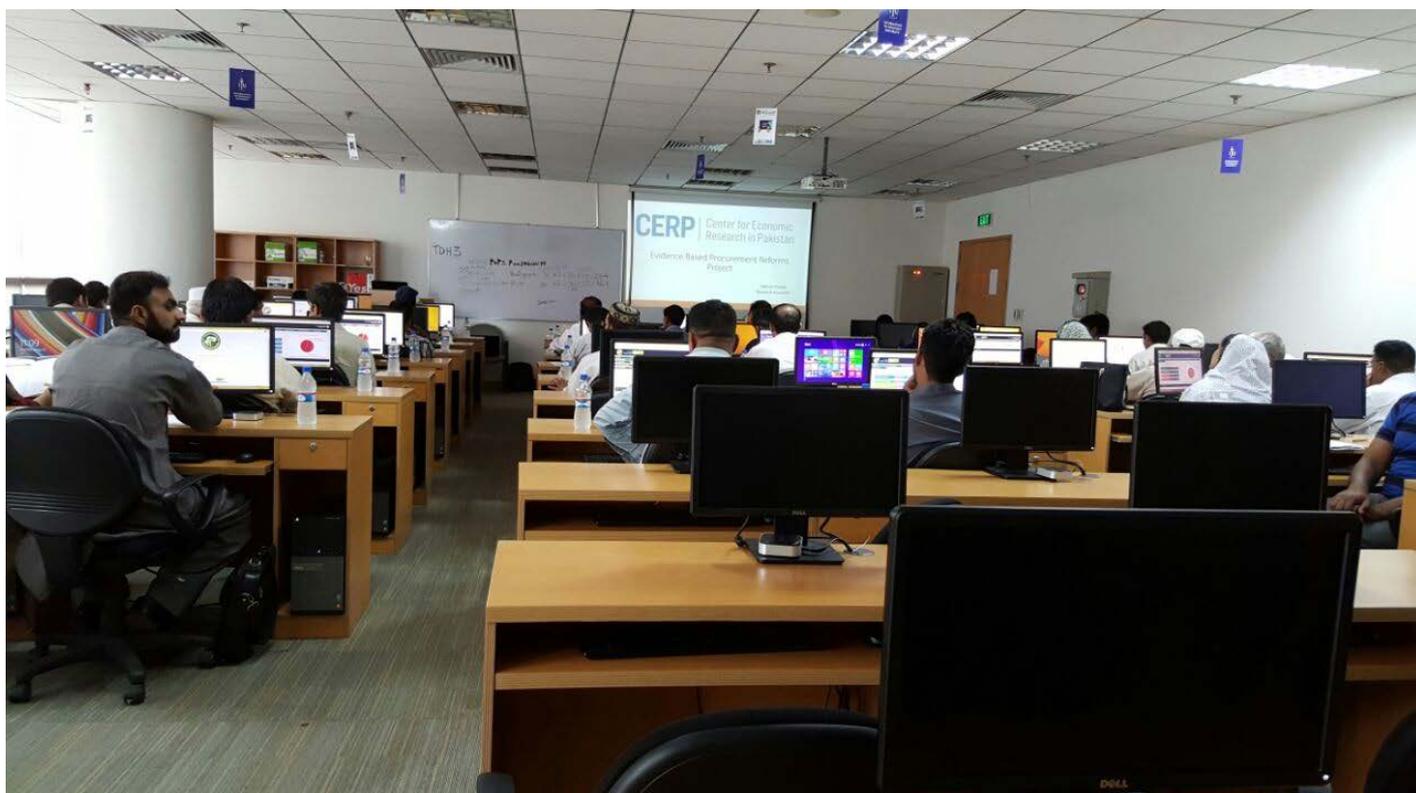
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LIST OF ACRONYMS

AG	Accountant General
CIOT	Chief Inspector of Treasury
C&W	Communication and Works
DAO	District Account Office
DDOs	Drawing and Disbursing Officers
FD	Finance Department
HED	Higher Education Department
ICAP	Institute of Chartered Accountants of Pakistan
MD	Managing Director
PEC	Performance Evaluation Committee
P&D	Planning and Development Department
PA	Procuring Agency
PITB	Punjab Information Technology Board
POPS	Punjab Online Procurement System
PPRA	Punjab Procurement Regulatory Authority
PRMP	Punjab Resource Management Program

1.   Introduction

Efficient public procurement is key to facilitating government investments in infrastructure, health, education and other public services, making it central to government efforts to improve living-standards. However, government procurement in developing countries is often plagued by high rates of corruption and wastage (Olken & Pande, 2012; Banerjee *et al.* 2012, Lewis-Faupel *et al.* 2014). While this problem is well-known, there are few robust measures of efficiency and very limited rigorous evidence on what policy changes can make public procurement more efficient.

This project develops two novel methods to measure procurement effectiveness and leakages due to bureaucrats misreporting purchases, in terms of the value for money achieved and implements them in the context of public procurement of goods in Punjab. In collaboration with the Government of Punjab we then go on to implement a field experiment to evaluate the impact of two policy reforms that provide bureaucrats with financial incentives and/or greater discretion to achieve value for money in procurement.

The project is a unique collaboration between researchers and a wide variety of stakeholders in the government of Punjab, including 750+ procurement officers, 4 line departments, and oversight departments including the procurement regulatory authority, the finance department, the planning and development department, and the office of the accountant general of Punjab. The lessons from the project have already, and will continue to, inform province-wide procurement reforms and provide broadly applicable lessons on how policy can structure bureaucrats' incentives to reduce waste and corruption in public procurement across different contexts.

This project is particularly salient in Pakistan in increasing efficiency of procurement given its limited resources and urgent spending needs. Procurement constitutes a substantial part of the government budget – Punjab government alone spends Rs.350-400 billion of its budget on procurement. Thereby ensuring the efficiency of public procurement becomes important for achieving cost-efficient service delivery.

Thereby it becomes important to determine what leads to inefficiency in procurement in the public sector. Measuring inefficiency in public procurement is difficult for two reasons. First, even in the absence of misreporting, it is difficult to measure the quality of goods and services purchased, and so it is difficult to compare prices and value for money across purchases: all bridges are different, and require different materials, making it impossible to compare value for money achieved across bridge-building projects. Second, it is difficult for monitors to verify the truthfulness of reports of the quantity and quality of procurement purchases by bureaucrats. This is particularly true for inputs into construction projects, an issue tackled in Olken (2007).

Our measurement methodology makes progress on the first issue, building on the methodology developed by Bandiera *et al.* (2009) to measure the value for money a procurement officer achieves in procurement purchases relative to other procurement officers. The methodology relies on collecting extremely detailed data on the goods being purchased, with a focus on "generic" goods where quality can be determined by using a

relatively small number of attributes of a good. With this detailed data, we can adjust prices paid for the quality of the goods purchased to uncover differences in the prices different procurement officers pay for the same good.

Generic goods are important per se – while a large part of the public procurement concerns infrastructure projects, a significant amount of resources are also spent on procurement of generic goods – but also because they provide a feasible mechanism for examining the efficiency of public procurement that is applicable to all procurement goods and services.

Data for this project was collected through an online portal, the Punjab Online Procurement System (POPS), designed and maintained by the project team in collaboration with PITB, into which procurement officers representing just under 1,000 government agencies enter the full set of details of every purchase of a generic good they make. We also performed a series of spot checks on goods purchased, and compared the details of the actual goods purchased with those entered into the POPS portal. This allows us to obtain measures of misreporting of both the quality and the cost of the goods being purchased.

These data on discrepancies between declared and actual purchases is then used to paint a picture of what aspects of their activities bureaucrats misreport to their principals monitoring them. These findings provide insights into what aspects of bureaucrats' performance are most easily verifiable (a key requirement for basing bureaucrats' incentives on their performance), what monitoring systems should focus on, and how to structure the environment bureaucrats operate in to minimize leakages. Moreover, this allows us to measure how bureaucratic misreporting responds to the experimental treatments described below to gain more general insights into how misreporting behaviour responds to different sorts of incentives faced by bureaucrats. This methodology builds on a number of studies (e.g. Olken, 2007; Duflo *et al.* 2013,) that use two separate reports of a transaction to estimate leakages, but applies it to public procurement purchases, and uses it to estimate both cost and quality leakages.

Bandiera et al. (2009) classify inefficiency in public procurement to be of two kinds:

  i.   Active Waste
  ii. Passive Waste

Active waste is leakage from the system that indirectly increases the utility of the responsible government employee whereas the leakages that do no benefit the incumbent in any way are classified as passive waste. In order to effectively diagnose the problem, it becomes important to classify theses causes to design an impactful solution.

In Punjab, lack of incentives, low motivation, red-tapism and bureaucratic delays all lead to active and passive waste. However, an additional key challenge in Punjab in improving public procurement is one of misaligned priorities. The emphasis on ground is to ensure legal compliance as opposed to ensuring low cost, good quality purchases. This in turn opens the door for gaming and box-ticking.

The following figure reports from survey of DDOs why in their view they are unable to achieve value for money.

Figure 1: Reasons for DDOs not achieving Value for Money

These are potential reasons for why DDOs don't achieve good value for money. In your experience how important is each of these?

Legend:
- Only a limited number of vendors are willing to wait for delayed payment
- Vendors charge higher prices for delayed payment
- DDOs have nothing to gain by improving value for money
- DDOs are worried that if they change vendors to achieve better value for money this might raise red flags
- Budgets are released late so DDOs cannot plan appropriately
- AG/DAO requirements are not clear and they do not clear bills without inside connections or payment of speed money
- DDOs do not have enough petty cash to make purchases quickly.

Values: 9.3, 8.3, 4.5, 5.8, 24.7, 13.2, 13.1, 11.2, 8.1, 1.8

In light of the above evidence and differing hypotheses, the first, logical step towards effective diagnosis and improving the efficiency of procurement, is to focus on measuring and benchmarking procurement outcomes. This lets us learn the current state of affairs, and lets us determine whether reforms to the procurement process are working.

The project, known in government circles as Evidence Based Procurement Reforms (EBPR) Project, attempts to measure the impact of two different potential policy changes, or interventions. The first intervention attempts to reward better performance by DDOs by giving them monetary incentives for performance. The second attempts to change structural issues such as payment delays, knowledge asymmetry, and inefficient budget release mechanisms to remove constraints that force DDOs to procure inefficiently. Finally, the Project uses an E-Governance system, the Punjab Online Procurement System (POPS), to measure detailed statistics on each relevant procurement in over 1,500 public bodies (or 'cost centers'). POPS was developed by PITB with input from PPRA, PRMP and the Research Team, and provides a platform that can be used in its own right.

The project was initiated by Punjab Resource Management Program (PRMP) in 2012, with approval provided by Chairman Planning and Development Board. PRMP handled initial design, approvals, and execution. It was subsequently handed over to PPRA, where it currently resides. Its resources have been provided by PITB after approval from Chief Minister Punjab. The project was overseen by the Steering Committee constituted after approval from Chairman Planning and Development Board, and was operationally housed at PPRA.

2. Problem Identification and Smart Policy Design Engagement

Traditional thinking on procurement focuses on several well-known problems. Many of these problems are specific to big-ticket procurement. Open competitive bidding, for example, and all the theoretical problems that accompany that method of procurement, are only relevant for very large procurements. While large procurements are undoubtedly important, an exploration of the Punjab Government's accounting data revealed that smaller purchases constitute a significant portion of all Government non-salary expenditures, especially expenditure on non-capital goods and consumables. These are those procurements for which current procurement rules do not mandate vendor selection through open competitive bidding. Also, where large-ticket procurement tends to be consolidated in several large procuring agencies (PAs), often located in large urban centers or the administrative seat of the district, smaller procurements tend to conducted by a very large number of procuring agencies, with far greater geographical spread.

We visited many of these smaller procuring agencies to conduct interviews and observe the procurement process. Through extensive interviews and observation of procuring agencies throughout Punjab, we observed specific institutional arrangements/rules were perverting incentives, both for the procuring agency, and for its agents. Procuring agencies and their agents/employees have no incentive to minimize costs or to procure at value-for-money. In fact they often have the opposite incentive, and many practices at the majority of the government's procuring agencies seem specifically designed to make the government pay more for less. These practices are detailed below:

1. Vendor's payments are delayed - causing vendors to charge a premium to reflect the time-value of money. This behaviour is only partially responsive to the availability of funds - it persists even when funds are available. Effectively, the government pays interest on funds that it has lying around waiting to be utilized.
2. Procuring Agencies use paper-middlemen - registered commercial entities that provide commercial invoices for accounting purposes and pay taxes on the payments made to them, but provide no actual goods or services. The government pays extra for the privilege of participating on the registered economy. This also seems to be unresponsive to the availability and willingness of actual registered vendors.
3. Mis-invoicing: Procuring Agencies often procure goods or services for legitimate, official purposes but pay for them using invoices that suggest they bought something else. This creates a culture of permissiveness, potentially encouraging vendors to over-invoice even in circumstances when the PA does not specifically request it to fund other, often legitimate, purchases.
4. Payment is uncertain - vendors not only have to wait to be paid - they also face the risk of not being paid at all or having to pay unofficial payments.

5. Partly because of measurement issues, procurement does not figure in either employee or procuring agency/cost-center performance metrics. Procurement outcomes are not measured and neither are public-welfare outcomes the agency is

responsible for that might be directly linked to procurement outcomes. This creates an asymmetric downside risk for procurement officers – better performance on procurement is not rewarded but any mistake/error on it can be very costly.

While the tenets of corporate governance would dictate that organizations conducting expenditures have in-house accounting and financial due-diligence, the vast majority of cost centers in Punjab do not - they are legally required to submit all expenditures to the Provincial (or District) Branch of a Federal Agency - the Office of the Accountant General, or AG Office.

Legally, a procurement must be completed, and goods or services received and inspected, before a request for payment can be made to the AG Office, in the form of "submitting a bill". The AG Office has the right to refuse payment if it deems that all paperwork accompanying the request for payment, (the bill), is not in order.

This essentially sets up a market for approvals ("passing" the bill) - because the agency approving the expenditure is different from the agency conducting it, there is little incentive to learn how to have all the required paperwork in order, even if all mandatory processes have been followed. There is also a culture of uncertainty. Last but not least, the majority of interaction between the PA and the AG is conducted by minimally educated personnel at the Procuring Agency (PA). This because the PA has no in-house financial head and the executive is often bogged down with the everyday work of running a government office, school or hospital.

In a market for approvals, monopolizing the ability to obtain or provide approvals forms the basis for rent-seeking behavior. Providing approvals is a legally mandated monopoly of the AG Office. However, the ability to obtain them, i.e. to have the required knowledge of what processes and paperwork is required to ensure payment, is a closely guarded by the staff at the cost center tasked with interfacing with the AG Office. This monopoly is further strengthened by the fact that while the staff at cost centers tend to remain at their positions for long periods, the head of the cost center is frequently transferred around different administrative posts. Exacerbating administrative costs are the relatively large distances staff must travel to the regional Branch of the AG Office.

All procuring agencies (or "cost centers"), fall in a strict hierarchy. At the top of the hierarchy is Punjab Assembly. Reporting to the assembly through Provincial Ministers and Secretaries are Administrative Departments, such as the School Education Department and the Health Department. Each department is allocated a budget at the start of the financial year, in theory by the Punjab Assembly, which passes a Finance Bill, but in reality for all practical purposes by the Finance Department. This budget is allocated at the start of the financial year to all Departments, but only at the "Fund Center". A Fund Center is an accounting construct consisting of similar cost centers. Arts Colleges, for example, tend to fall under a single cost center. While the provincial government may release funds to the Fund Center relatively quickly, the Fund Center, administered by an office of the Administrative Department, often delays passing fund on. Funds are often released towards the end of the fiscal year.

The Procurement Process in Context of the Project's Objectives:

To understand how factors leading to procurement inefficiency come into play, we first provide some background information on how public procurement is currently carried out.

Procurement in Pakistan is conducted and regulated at the level of federal, provincial and district levels. There is broadly uniformity in the procurement system at the Federal and Provincial level. For Punjab, the Punjab Procurement Regulatory Authority (PPRA), where the project is housed, was created in 2002 to govern the procurement in Punjab and take steps to improve the quality and transparency in the procurement system if necessary.

In order to procure goods, the vast majority of procuring agencies (apart from Autonomous Bodies) are required to submit all their expenditures to the Provincial (or District) Branch of a Federal Agency - the Office of the Accountant General, or AG Office for pre-audit before the payment can be processed. The legal authority to make procurement purchases is vested in government officials known as Drawing and Disbursing Officers (DDOs).

Generally, for petty purchases, the procurement process starts with someone making a request or demand for an item in an office which goes to the Drawing and Disbursing Officer (DDO) for approval. After the DDO signs the request for the purchase of items, the Procurement Officer (PO) surveys the market for vendors and rates for the items. The duty of the 'Procurement Officer' is usually assigned to clerks, registrars or assistant officers as most offices lack the capacity and staff for in-house accounting. Often, these POs are either minimally educated or not familiar with the rules and regulation concerning procurement when they start.

After the POs' have surveyed the market, the DDO needs to sanction the order for the items, keeping in mind the budgetary capacity, before the procurement process can proceed. In case the purchase is above Rs. 50,000, a comparative statement needs to be prepared with at least three quotations from different vendors. The item with the lowest price is bought.

Once the items have been sanctioned, the PO can receive the goods from the vendors. Legally, a procurement must be completed, and goods or services received and inspected, before a request for payment can be made to the AG Office, by submitting a bill or voucher – as it is referred to – for the procured items. The bill includes paperwork such as request orders, sanction forms, contingency sheets (containing calculations of the gross and net amounts) and invoice from vendors.

It usually falls on the procurement officer to ensure that the documentation for pre-audit is complete and the bill is approved from the AG/DAO office. Once the bill is approved by the AG/DAO, the office receives payment in the form of a cheque, after which the vendor can be paid. In order for the bill to be approved, the office has to have sufficient budget available the required expenses.

The rules authorize the AG Office to refuse payment if it deems that all paperwork accompanying the request for payment, (the bill), is not in order. Practically this often takes the focus from ensuring that the goods bought are of good quality at minimum prices to ensuring that all documentation and paperwork is complete.

The authority to approve or reject bills is completely at the disposal of the AG and the AG/DAO often does not disclose the reasons for rejecting bills, where bills can be delayed for weeks. This sets an air of uncertainty and a resulting market for approvals. A monopoly over the market for approvals (the authority to accept and reject bills) forms the basis for rent –seeking behavior. This behavior is exacerbated by the fact that while the staff at offices tends to remain for long periods of time, the head of the office – the Drawing and Disbursing Officer- is frequently transferred to different administrative posts. Also offices located remotely have to incur increased travelling costs to cover the large distances to reach the regional branch of the AG office. There is also uncertainty to how much and when the budget would be released for the purchases to be planned and the bills to be processed.

To add to this, there is little transparency and accountability in the system where the laws are poorly implemented or enforced. In this environment, the morale of both the DDOs and the procurement officers also tends to be low as there are few incentives in place to motivate them to prioritize procurement efficiency in their dealings.

Quick checklist for Public Procurement Process in Punjab

1. Identify Needs
2. Ascertain Budget/ Resources
3. Determine Specifications
4. Conduct market analysis
5. Select process/ method
6. Prepare documents / contract
7. Publish, communicate, pre-qualify, evaluate and redress
8. Sign contract
9. Monitor performance, review and evaluate
10. Improve future procurement

3. Project Design and Timeline

3.1 Overall Project Design

After extensive interviews and surveys conducted during the pilot phase, the main factors adversely affecting procurement performance were summed into two categories. These are
- i) misaligned incentives of procurement officers, in particular lack of (financial) incentives for procurement officers, and
- ii) ii) procedural constraints in the system.

These in addition to lack of readily available information on purchases made by procuring agencies led to some offices paying much more for observationally identical goods where the price differential is substantial.

We define inefficiency as simply paying different per unit prices for similar quality items.

Figure 2: Variation in Quality Adjusted Unit Price of Printing Paper

The histogram shows the variation in prices for similar quality printer paper.
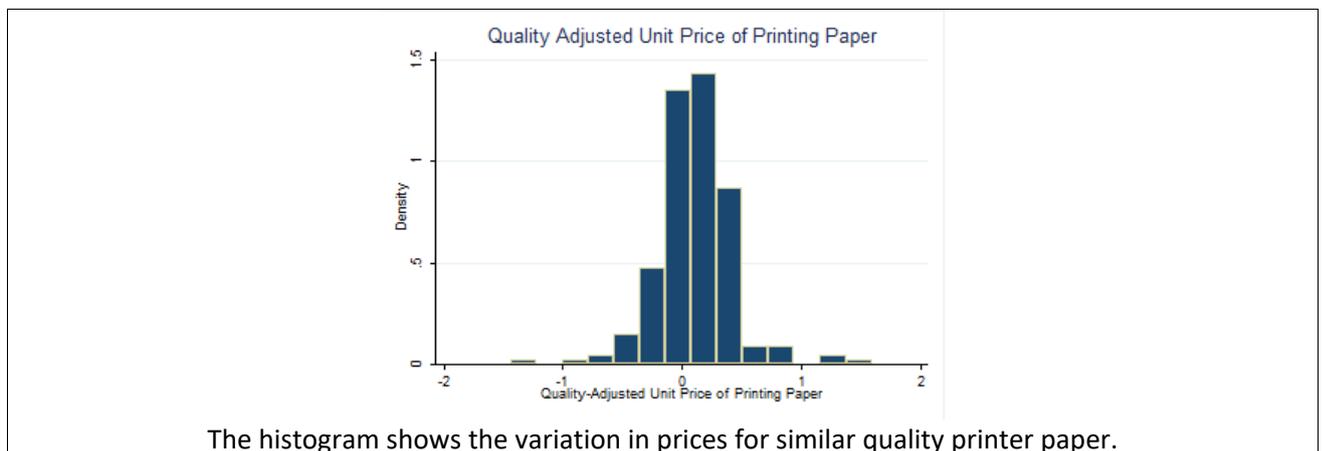
To this effect, the following policy reforms or interventions were designed by the research team to determine how efficiency or value for money can be maximized for Drawing and Disbursing Officers (DDOs) and their staff:

i.   *introduction of an IT based system called the Punjab Online Procurement System (POPS) that captures detailed information on the purchases made by offices*
ii.   *modifying rules of procurement to give DDOs more autonomy*
iii.   *provision of financial incentives in the shape of an Performance Based Honorarium*

In order to implement these reforms, cooperation from the government was of paramount importance; not only for their valuable insights, but also to get the reforms off the ground by making the necessary amendments and allowances in the current rules and regulations.

Thus, in addition to the research team from CERP, different government agencies partnered up to help with the implementation of the project. The project was housed at the Punjab Procurement Regulatory Authority (PPRA) - an autonomous agency that regulates the rules for procurement in Punjab. Other important partners include the Punjab Information

Technology Board (PITB), Planning & Development Department (P&D); the Finance Department (FD) and four line departments.

The project has also been endorsed by the office of the Chief Minister (CM) Punjab, during its course. In addition to consenting to the reforms proposed and the design of the project, the office of the CM has been presented with a monthly progress of the project activities. This helped identify the project as a worthy initiative to propose good governance reforms.

With the collaboration between the research team and the government, the aforementioned reforms were introduced to a representative sample of 719 offices across 28 districts of Punjab over the period 2014- 16.

The offices belonged to four administrative departments i.e. Higher Education, Communication and Works, Agriculture and Health. In 2015-16 Health was divided into two departments i.e. Primary & Secondary Health and Specialized Healthcare & Medical Education Department and Agriculture.

In order to evaluate the effectiveness of the interventions, a Randomized Control Trial (RCT) – the gold standard for impact evaluations- was used where the selected cost centers (the main accounting entity of the government) were randomized into four groups; the fourth being the control group. Each group was then subjected to a varying version of the policy reform targeting low procurement efficacy in order to determine how DDOs' can be motivated and facilitated to perform better procurement. Section 3.2 explains in detail the basis for the randomization. A quantifiable impact of the evaluation was through observing differences in per unit prices for similar items.

The randomized sample was divided into the following treatment groups to administer the reforms:

Group 1: Incentives:
Financial incentives were offered to Drawing and Disbursing Officers on the basis of their performance as measured by value-for-money achieved.

Group 2: Constraints or Rules:
This intervention addressed problems arising from structural or procedural constraints, by proposing a threefold solution. The first was increasing the permanent advances (petty cash) of the offices to a maximum of Rs.100, 000. The second was releasing the budget to the spending level (cost centers) earlier and in larger chunks. And the third was the circulation of a list of pre-audit documents that outlined the rules for pre-audit in detail. It was called the AG Checklist or the pre-audit guide.

Group 3: Incentives and Constraints
DDOs' in this group were provided with both financial incentives and increased discretionary power through the combination of interventions in Group 1 and 2.

Group 4: Control
This group did not receive any intervention and operated under business-as-usual, and so served as the counterfactual to measure treatment effects.

Offices in all four groups, including the control group, were required to enter details of their transactions into POPS.

Sections 4 and 5 discuss in detail the design and rollout of these interventions respectively.

The dataset comprised of 122 generic items purchased by offices, which were selected on the basis of their frequency and comparability. Each item had specific attributes which allowed it to be standardized and compared across offices. Other factors such as distance, departments, and time were also kept constant to ensure complete comparability.

This data was complemented by management surveys, laboratory games (the dice task) and IQ tests carried out at different points during the roll-out of the project from DDOs and their staff members. The surveys help understand the behavioral patterns of DDOs and how much time they spend on procurement activities to better determine how they respond to different triggers.

3.2 Sample Selection

This section discusses in detail how the sample was selected. As discussed, the main accounting entity for the government is a cost center under which budget is allotted. One office can have several cost centers and one DDO can have several offices. The sample was selected keeping the following criteria in mind:

3.2.1 District or Provincial Cost Centers?

The Provincial and District governments are two distinct structures of governance under the Government of Punjab. We expected district government offices to vary considerably in their characteristics according to which district they were in. Hence to ensure that we had comparable and more homogenous offices we decided to restrict to provincial offices. This would also save the logistic cost of coordinating with two different structures within a government.

3.2.2 Object Codes and Expenditures

The accounting system used by the Government records each transaction under a category of expense called "Object Code". We focused on object codes which were likely to have comparable items under them. After consultation with various government officials, we restricted the object codes to the list in Table 1 of the Annex A. These object codes fall under the broad category of A03 (Operating Expenses), A09 (Purchase of Physical Assets) and A09 (Repairs and Maintenance).

We focused on cost centers that had at least one transaction in our identified object codes and not very small. For that we restricted to cost centers with the total transactions worth more than PKR 25,000 (~$250) in the identified object codes.

3.2.3 Districts and Departments

Punjab province comprises 36 administrative districts. We restricted our sample to 28 districts based on geographic considerations and operating expenses of an extra district whilst ensuring that we have sufficient number of offices in order to detect an effect. The list of selected districts is in Table 2 of Annex A.

The four departments in our project were selected based on their expenditure in our relevant object codes. Given the substantial logistical cost of adding an additional department, we selected departments with the largest expenditures so that our sample represented a large proportion of spending by cost centers.

3.2.3 Balloting / Randomization

We included every cost center that satisfied the aforementioned criteria. Each cost center was then randomly assigned to one of the three treatments or the control group. The sampling was stratified on district and department to get homogenous cost centers across the treatments. The unit of randomization is Office however at the time of random assignment government of Punjab did not have a well maintained record of cost centers relationship to office and then office's to DDO. As mentioned above one office can have multiple cost centers, and one DDO can have multiple offices. But from the available data it was impossible to distinguish whether cost centers fell under the same office and then which offices belonged to which DDO. We tried to collect this data from making telephone calls and asking individual departments and districts for the information however our information remained incomplete at the time of assignment and because of which the final treatment assignment differ from the initial assignment. The summary of initial assignment of offices is as follows;

Table 1A: Summary of Initial Random Assignment					
	Incentives	Rules	Rules & Incentives	Control	Total Unique
Number of Cost Centers	259	263	269	263	1054
Number of Offices	232	243	236	238	901
Number of DDOs	224	234	230	235	843

As mentioned above because of the lack of information on the cost centers - office association, multiple cost centers which fell under the same office ended up getting assigned to different treatments meaning that one office had multiple treatments assigned to it. This was impractical because of obvious reasons that the office shared the same staff, same procurement practices and same attitudes etc. and it is practically impossible for the staff to deal procurements under one cost center differently than the other. To deal with this we contacted all the offices (mostly through departments) and identified the cost centers – office association. Once we gathered the information we shifted treatment assignment of some cost centers to make sure that all cost centers under a single office have the same treatment group. The algorithm to move treatments was as follows;

1.   If at least one cost center under an office is in group 1 and another in group 2; move all to group 3.

2.   If at least one cost center under an office is in group 1 and another in group 3; move all to group 3.

3.   If at least one cost center under an office is in group 1 and another in group 4; move all to group 1.

4.   If at least one cost center under an office is in group 2 and another in group 3; move all to group 3.

5.   If at least one cost center under an office is in group 2 and another in group 4; move all to group 2.

6.   If at least one cost center under an office is in group 3 and another in group 4; move all to group 3.

(Where 1, 2, 3 and 4 corresponds to incentives, rules, incentives and rules, and control groups respectively.)

Since treatment 3 envelopes both treatment 1 and 2, it made sense to move offices to treatment 3 if the office was exposed to both treatment 1 and 2 because it was invited to information sessions of both treatments and may have been treated. This led to increase in the number of cost centers in group 3 as compared to other groups. Other shifting of treatment groups followed the same line of reasoning.

Another consequence of the missing cost center – office – DDO relationship was that we ended up not selecting some of the cost centers that fell under an office and selected others (that met the selection criteria outlined above). So this meant that we had offices in our sample for which some cost centers were part of our sample and others were not. This was impractical to handle so we decided to include all the eligible unselected cost centers and assigned them the same treatment as the treatment of other cost centers under the same office. Also if DDO had multiple offices under him that were not selected in initial sampling, we included those in our project and assigned them the same treatment as the treatment of other offices of DDO. There were some cost centers which could not be contacted, after multiple attempts at trying to contact them we ended up dropping them from analysis.

After making all the adjustments the final assignment is as follows:

Table 1B: Summary of Final Assignment					
	Incentives	Rules	Rules & Incentives	Control	Total
Number of Cost Centers	306	299	383	294	1282
Number of Offices	220	224	254	219	917
Number of DDOs	208	213	236	212	841

To see whether revised assignments introduce any selection bias into our treatments we perform various balance checks. The summary of those is presented in table 2. The last column reports the p-value from the joint equality of variable in all treatments. As can been seen the treatments are well balanced across departments and districts.

3.3 Project Summary Timelines

Table 2: The Project Timelines are given below:

Activity	Timelines	Details
Pilot	Fiscal year 2013-14	It was rolled out across 5 districts of Punjab during which POPS was adopted across 500 computer terminals
Summary Approval	January 2015	The summary approved the design for the project and its intervention. It also allowed for the amendment to be made in Rule 2.8 of Punjab Financial Rules.
Interventions: i. Large scale information sessions ii. Large scale training sessions iii. Imprest disbursal iv. Pre-audit Checklist v. PEC	i. July-August 2014; August-September2015; February-April 2016 ii. August-October 2014; September-October 2015; May-June 2016 iii. October-March 2015-16 iv. February 2015; April 2016; February 2017 v. February 2015 onwards	i. Informed and updated the officials on the interventions ii. Trained the officials on POPS iii. Imprest was sanctioned to the department and cheques were issued iv. The pre-audit checklist was circulated by the research team and departments
Surveys	i. February- June 2016 ii. August-September 2016 iii. February-March 2017	i. Data in POPS was verified along with conducting management surveys, dice games and IQ tests ii. Endline survey along with missing data was collected iii. Endline, mechanism survey, dice games and IQ tests were conducted

4. Intervention Design

The premise of each intervention has been discussed. This section focuses on how each intervention intends to target procurement inefficiency by explaining in detail what they entail.

4.1 Incentive Treatment Design Details

In order to align the incentives of the DDOs and the governing agencies, DDOs were motivated to achieve value for money in their transactions by rewarding them with financial honorarium. Numerous studies have shown that performance bonuses or financial incentives are strong triggers for improving performance of bureaucrats (Khan et al. 2016, Sundaraman and Muralidharan 2000, Gertler et al. 2010). Currently, the DDOs have few if any financial incentives to improve their performance on public procurement.

The honorarium was awarded on the basis of value for money (paying less per unit without comprising quality) achieved in purchases relative to each other. A Performance Evaluation Committee (PEC) was set up by the Government of Punjab to oversee the methodology used and approve the honorarium for the recipients. The PEC was co-chaired by Managing Director, PPRA and the President, Institute of Chartered Accountants of Pakistan (ICAP) and covered representation from all the relevant line departments and concerned agencies like PITB, P&D and the Finance Department.

The research team used data from the Punjab Online Procurement System (POPS), field surveys on physical verification and audit and budget reports from the finance department to evaluate performance. 122 generic items were evaluated based on their frequency and observability. Each item was defined by some fixed observable attributes. For example the brand, weight and color were used to determine the quality of printing paper. The list of the selected items is attached in Annex B.

In order to rank the DDOs, firstly the log prices paid for observable attributes of the purchases were adjusted. Other observable characteristics such as the distance, department and time were also controlled for. Secondly, the residuals from these regressions were regressed on cost center fixed effects to get average quality-adjusted prices paid by each cost center. These estimates were then adjusted for selection from incomplete POPS data. This was to discourage DDOs from entering selected bills in POPS. Fourthly, the cost center fixed effects were assigned to the relevant DDOs in order to split the prize for cases of DDOs who move, and for DDOs with multiple cost centers. Finally, the rankings were adjusted for the composition of the goods used to calculate them.

The PEC vetted the performance incentives and ranking methodology suggested by the research team and discussed/approved the honorarium for better-performing procurement officers. The DDOs were evaluated twice a year during the fiscal years 2014-16, through a mid-term honorarium and a final term honorarium in which the data for the entire year was evaluated. They were then placed in the Gold, Silver or Bronze Group according to their scores. Rankings in the final honorarium were adjusted against the mid-term honorarium in case a DDO received both.

The amount of honorarium awarded was as follows:

Category	Ranking	Honorarium
Gold	Top 25	2 base pays
Silver	Top 75 (but not top 25)	1 base pay
Bronze	Top 150 (but not top 75)	½ base pay

4.2 Rules Treatment Design Details

DDOs' have considerable discretion when making procuring decisions. However, exercising this discretion to make wise procurement decisions is often hindered by procedural and structural constraints in the procurement landscape.

To ensure that the DDOs' are able to exercise their autonomy, three forms of support were provided to the selected offices.

The **first** was the **availability of an imprest account** or in simple terms 'advanced cash/petty cash' up to an amount of Rs. 100,000 to a DDO. Under the current rules of procurement, in order for the offices to make payment to vendors they have to go through the lengthy and uncertain process of getting bills passed from the AG/DA offices which in some extreme cases can take up to months. Due to this, not only is the payment delayed but the sample of vendors from which the DDOs' or their staff can choose from is extremely limited raising prices paid.

Through imprest or cash in hand, offices can not only make speedier and on the spot payments to vendors but also get better value for money as their negotiating power and terms with the vendors increase. They can also select from a wider variety of vendors to get better prices.

The amount requested and sanctioned to the offices was the annual budget in the object codes part of the project or **Rs. 100,000** whichever was smaller **per** office. The amount was assigned **per** office or **per** DDO according to the governing financial regulations. The DDOs were required to make purchases using imprest only in object codes part of the project. Through imprest, the DDOs could pay the vendors in real time when making purchases and later reimburse the amount after the bill was passed from the AG office.

The **second** facilitation was **timely and early budget release.** In order to plan procurement activities in advance for efficient procurement, it is very important for an office to know when and how much budget is to be released for the year. Although, budget is usually released from the Finance department, undue delays take place for it to reach the spending level of cost centers.

Thus, the project ensured that the budget for these cost centers was released timely and in larger chunks. The reform entailed that any delays in budget release either from the FD to the line departments or the line departments to the cost centers be minimized.

The **third** reform was the **circulation of a list of pre-audit documents** that was definitive and exhaustive and removed the scope for arbitrary pre-audit. This list called the' pre-audit guide' or 'AG-checklist' was approved by the finance department and comprised of a detailed list of documents that have to be presented together with a bill in order for it to receive approval and payment by the AG/DA offices. This bridged the knowledge asymmetry between the DDOs and the pre-audit offices, removing uncertainty in the bill clearance process.

4.3 MIS Design: Punjab Online Procurement System

The Punjab Online Procurement System (POPS) is an internet based system that captures details on the procurement activities of government officials. It was developed with the help of the Punjab Information Technology Board (PITB). POPS is one of the first e-procurement systems in Punjab that captures such a wide range of information on purchases of generic items and has the potential to act as a catalyst for e-procurement in the country.
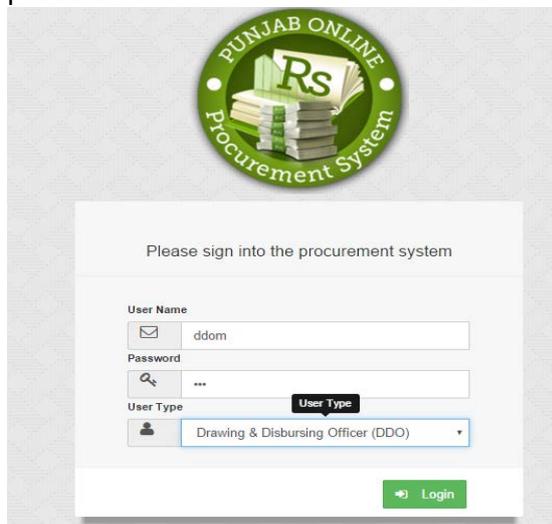
The system is designed to replicate an actual purchasing cycle of an office. It records details of transactions starting from the generation of a request for an item to the passing of bills at the AG/DAO.

Information recorded in the system includes specific attributes of the items requested such as their brand, model, material etc.; and the per unit price paid for each item (with and without taxes). The system also

Currently, procurement especially petty procurement is conducted on an entirely paper- based system in Pakistan. The benefits of introducing IT based solutions to procurement have been recognized in many countries where e-procurement has led to reduction in the procurement cycle time, cost savings, and increase in the number of vendors available. Now, efforts are being made to introduce and implement e-procurement in Pakistan to ensure hassle-free and transparent procurement.

Although, the implementation of an online procurement system comes with its own hurdles – such as lack of infrastructure and computer literate personnel- it can pave the way towards accountability and efficiency in the procurement landscape

The project developed an internet based system called the Punjab Online Procurement System (POPS) that was used to record details of procurement transactions. Its implications are far reaching however, as it is has the potential to act as a catalyst for e-procurement (especially for petty purchases) in the country.
According to Aberdeen Group (2006) "As a result of the introduction of e-Procurement, procurement cycle time reduces up to 75%".

catalogs vendors or selection of vendors from which the items were procured from, among other details.

In addition to this, POPS records dates that can help assess the speed and efficiency of procurement. These include:

- the date an item was requested on;
- the date it was sanctioned by the DDO;
- the date an item was received by an office;
- the date the vendor was paid;
- the date a bill was submitted at the accounts office;
- the date it was passed by the accounts officer.

POPS has three primary user accounts. An **End User** (anyone who makes a request for an item at an office); a **Procurement Officer** (anyone who carries out procurement related activities at an office) and the **DDO** account. All three accounts consist of functions that reflect their actual responsibilities and roles during procurement. All three accounts are interlinked with each other for an office and can perform functions in real time. For example the Procurement officer can send quotes for an item to the DDO and the DDO can sanction them from his/her account.

Once a user has entered the necessary details in POPS, the system automatically generates the required documents for pre-audit. Based on filled information, the system produces the pro-forma computer information sheet, budget sheet, object code sheet, comparative statement, and supporting documentation (sanction orders, requests, etc.), saving officials the trouble of tedious paperwork required for preparing these documents manually. These documents can be printed and presented to the A.G/DAO whilst submitting the bill for accounting and/or audit purposes.

Also, in order that the cost centers can plan their purchases efficiently, users of POPS can view the budget released and available under each object code. In addition to improved record keeping, POPS can allow supervisors to better monitor their sub-officers across different margins such as speed of procurement, prices paid, following of processes etc. whilst promoting transparency and accountability.

As of September 2017, POPS has been implemented and adopted across 1200 government bodies across 34 districts of Punjab. Since the implementation of POPS, over 55,000 bills have been entered in the system. Comprehensive training sessions have been conducted for more than 3500 public officials over the course of the project to train the users on the system.

Currently, POPS records details in the object codes A03 (Operating Expenses), A09 (Purchase of Physical Assets) and A13 (Repairs and Maintenance).

5. PROJECT ROLLOUT DETAILS:

The project was spearheaded by a committee formed at the provincial level that included representatives of the Line Departments and other relevant government bodies. The roll-out entailed policy reform and change at the provincial level and bureaucratic support had to be enlisted to seamlessly roll out the interventions.

Disseminating information:

One of the first steps during the implementation of the policy reforms was to hold large scale information and training sessions (for POPS) in the beginning of the fiscal year 2014-15 to inform the DDOs of the project and its purpose. Without appropriately informing DDOs about the interventions and providing regular updates, a change in their behavior is not likely. Follow up information and training sessions were held in 2015-16 in different locations central to the selected districts by the research team. Brochures were also circulated via email.

One of the major challenges during the sessions was to ensure that the Drawing and Disbursing Officers and at least one relevant staff member attended the session. The administrative departments coordinated with the research team to ensure compliance. Invitations went out both through post and email by the research team. These were supplemented by calls from the departments.

The training sessions were conducted to familiarize and train the government officers on the use of the Punjab Online Procurement System. Details of the trainings are discussed below.

During the information sessions, the government officers were given details on the purpose of the project, their role in it, the interventions and how it would impact them. Questions and apprehensions of the offices were addressed. These included the basis on which the honorarium was allotted, how it was calculated, who would receive it, how and when to use imprest and the current status of the interventions. Since it is very difficult to change the bureaucratic structure to bring about any change or in this case introduce the interventions, the officers were wary about the project. However, they did agree that change takes time and this project is a good initiative to do so by identifying how procurement efficiency can be achieved.

Comprehensive brochures were circulated and feedback taken. The feedback forms allowed the team to gauge the officials' perceptions and understanding of the project.

Follow up information and training sessions were held from February to May of 2016. These were important firstly to update the officials on the status of the interventions and secondly to remind them of the interventions especially given that they have to prioritize other duties on a daily basis. For follow up sessions, DDOs would nominate their staff members to attend in case of conflicting schedules.

However, this Information dissemination and the general rollout was affected by the regular transfer of DDOs to and fro from offices. Sometimes the DDOs were placed in offices part of our sample, and other times outside. In some recorded cases, DDOs were placed in an office for a mere month before they would be transferred. About 300 cases of transfers of DDOs from cost centers covered under the project had been recorded during 2014-16. In the

absence of a centralized and regularly updated HR database by the departments/government, it was very difficult to keep track of these transfers.
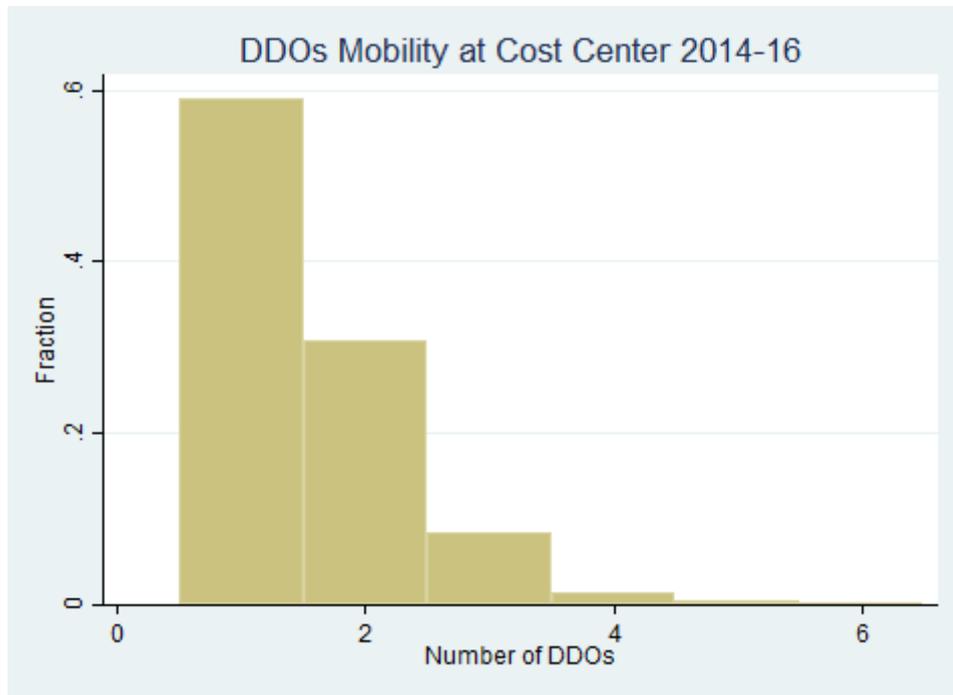

*Figure 2: How aware were the DDOs of the interventions?*
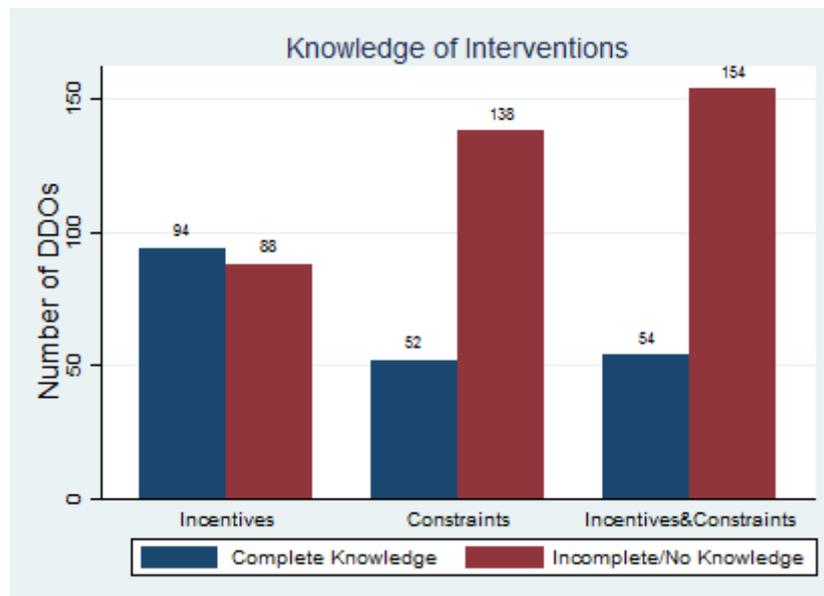
Source: EBPR Endline Survey

Figure 2 shows whether the DDOs were aware of the interventions being provided to them. The variable complete knowledge indicates that the DDOs identified all of their interventions correctly, and Incomplete/ No knowledge means that they either partially identified the interventions (for instance missed out on one) or in a few cases had almost no knowledge of them. It must be noted that 17 % of these DDOs had not been able to attend training sessions

as they had been recently transferred. Often in these cases, it is the job of the office staff to update the DDOs on the project, which they fail to do so. It must be noted that in most of these offices, the staff is able to correctly identify all interventions.

Figure 3.1: How many DDOs believe they received the promised interventions in group 3?
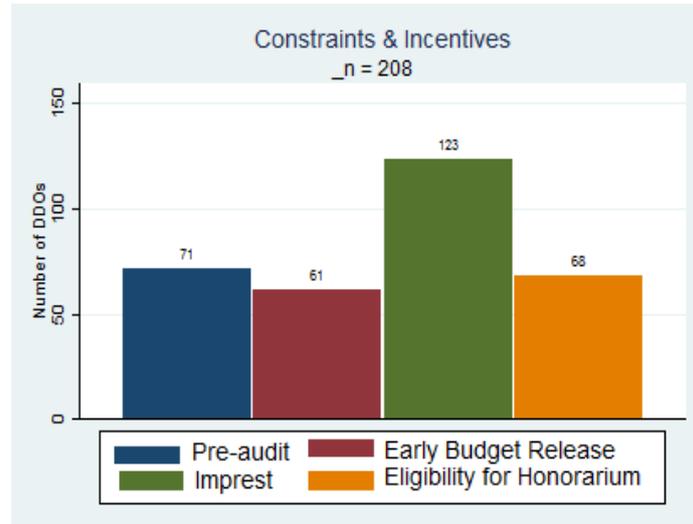

Source: EBPR Endline Survey

Figure 3.2: How many DDOs believe they received the promised interventions in group 2?
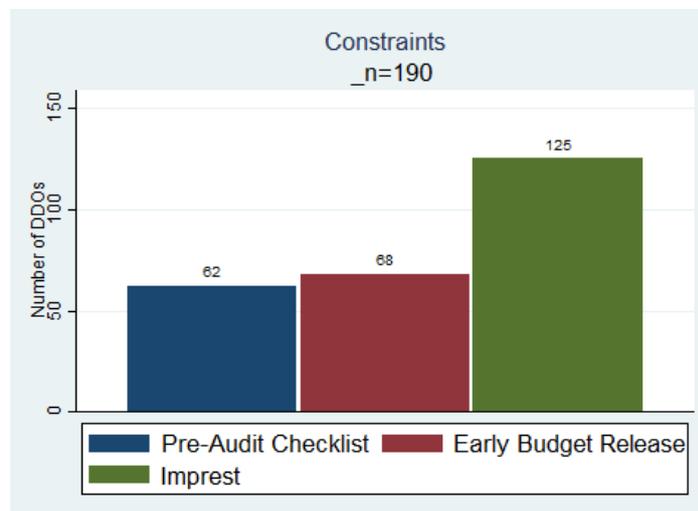
Source: EBPR Endline Survey

Figure 3.3: How many DDOs believe they received the promised interventions in group 1?
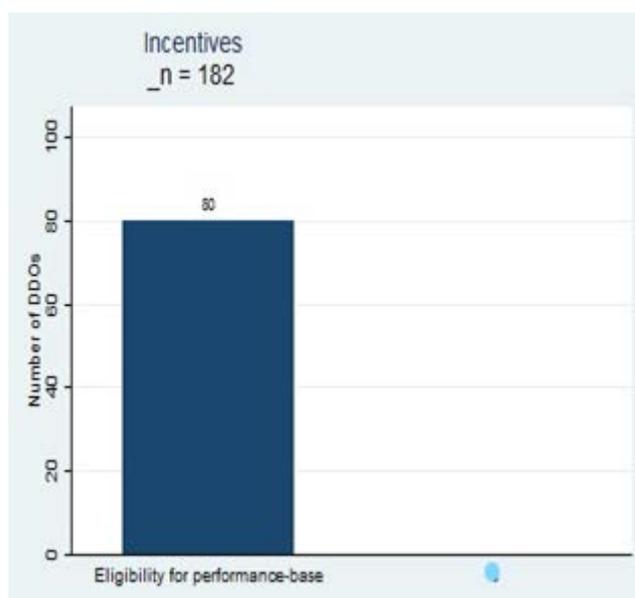
Source: EBPR Endline Survey

The graphs above show how many DDOs believed they received the interventions irrespective of whether they did or did not. Again the transfer of DDOs and the change in timelines are factors in the responses of the DDOs.

5.1 Incentives Rollout:

As mentioned above, the first step was to inform the DDOs about the intervention. It was very important that they understood what the criteria for being awarded the honorarium was i.e. to achieve value of money in their purchases, instead of merely entering the purchases in POPS.

During the fiscal years 2014-16, the Performance Evaluation Committee convened thrice to award the honorarium rigorously evaluated by the research team. All three times, the PEC was hosted by PPRA. The proceedings to announce the mid-term honorarium for 2014-15 was held on 7th February 2015; the final honorarium for 2014-15 and the mid-term for 2015-16 was announced on 11th April, 2016; and the final honorarium for 2015-16 was announced on 16th February, 2017.

The evaluation for the final honorarium of 2015-16 was held in the beginning of 2017 so that we could collect and evaluate as much missing transactions data as possible.

The table below shows the number of honorarium awardees:

Honorariums awarded by category				
	2014-15		**2015-16**	
Category	**Mid-Year**	**Final**	**Mid-Year**	**Final**
Gold	8	20	12	20
Silver	25	40	24	40
Bronze	50	60	36	60
TOTAL	83	120	72	120

The results of the PEC were announced to the DDOs via post, emails, SMS messages and follow up information sessions in 2016; where the winners were also informed through calls. Messages sent out to the DDOs contained individualized scores and details of their current ranking. DDOs who did not receive an honorarium were encouraged to perform better for the remaining evaluations.

The process followed for the disbursal or payment of honorarium to the eligible DDOs was as follows. Once PEC approved the list of eligible DDOs, PPRA initiated the payment process by sharing the list of the recipients with the departments. This was followed by several meetings on the process within the line department and between the line department and Finance Department for sanctioning the release of funds for the honorarium. Following the due process, the departments then issued sanction letters for the honorarium. The recipients collected their honorarium from the AG/DAO by presenting them with the sanction letter released by the departments.

Figure 4: Did the Honorarium Motivate DDOs to perform better
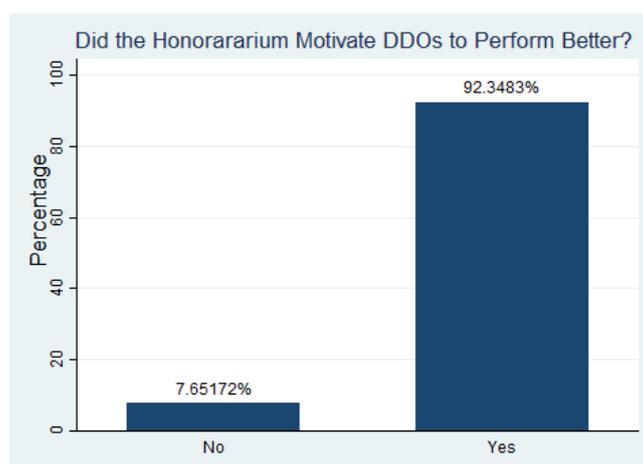
Source: EBPR Endline Survey

5.2 Rules Rollout:

Imprest:

The passing of the project summary allowed for the Rule 2.8 of the Punjab financial Rules to be amended. This was considered a major and unprecedented reform which in turn allowed for the selected offices to be allotted imprest accounts. However, this was followed by a lengthy process of getting the AG office to approve the increased imprest limits and the departments to sanction the amount.

In order to get the departments to notify imprest, the first step was to get approval from the AG office and Finance department. This was a protracted process involving all relevant parties. Several bureaucratic hurdles and delays were experienced during the process. After

the queries of the AG office had been satisfied, the departments could issue notifications for imprest. 24 offices had to be dropped from the list for sanctioned imprest as the rules did not allow for them to receive imprest. Most of these offices either had a pre-approved imprest limit or a special disbursing account (SDA) in which funds can be used without pre-audit.

The departments issued notifications for imprest by October 2015 after ensuring that they were adhering to the rules and regulations and had to accommodate this with other pressing tasks which naturally further delayed the process. Then, with the help of the research team, the notifications were sent to 516 offices through post and email along with a sample bill for the convenience of the DDOs. This was followed with calls to the DDOs to ensure that they had received the notification and so that the research team could monitor the rollout of imprest in real time.

However, even these steps were initially not enough for smooth processing of the bills. Initially the AG office and many of the District Account Offices refused to pass the bills and according to many procurement officers asked for 'compensation' or claimed technical difficulties in their accounting system. On average a bill was submitted 3 times before it was accepted.

Figure 5: Did someone in the AG/DAO ask for speed money to pass the bill?

Source: EBPR Endline Survey
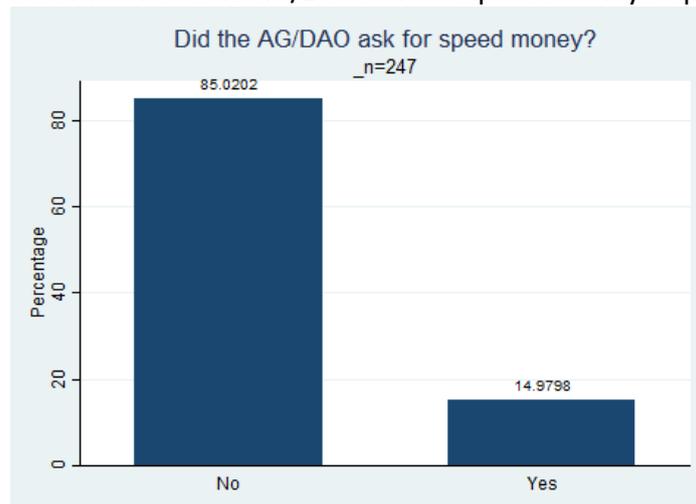
The project team regularly communicated with the AG office and DAO to get the bills passed in time. They were explained in detail the purpose of imprest and the project and the fact that a monthly progress report on the project's indicators is sent to the office of the CM. To avoid further unnecessary delays, Finance Department involved the Chief Inspector of Treasury (CIOT) f who directed the AG/DAO to expedite the bill clearing process.

The following graph shows the take up of imprest over time.

Figure 6: Timeline and take up of imprest
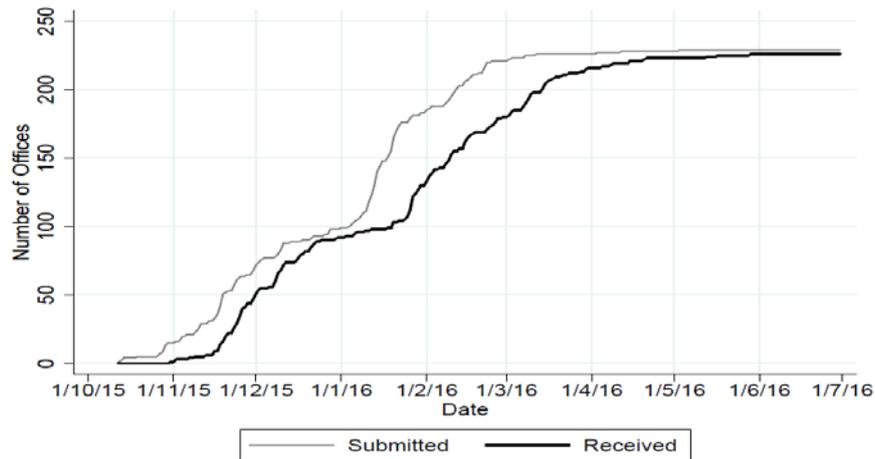
The offices were also sent detailed guidelines on how to use imprest. The guidelines were regularly updated to reflect the questions of the DDOs. Information sessions were also held in the field during this time to personally address the apprehensions of the DDOs in using imprest since many of the offices had not handled advanced cash before.

Early Budget Release:

Early budget release was less contentious but still involved many transaction costs and delays. The departments agreed with the concept in principle but reminder meetings were needed to ensure that the budget was released in time. In the beginning of 2014-15, the team helped the departments to figure the semi-annual budget allocation according to the annual budget demanded and expected budget release.

However, often the departments such as HED were late in releasing the budget at the Fund Center level which caused unnecessary delays. In 2015, in such a case, the team ensured that the budget is still released earlier than usual.

Pre-audit checklist:

PPRA shared the checklist prepared under this project to Finance Department for due vetting, modification and circulation. The departments also subsequently circulated the checklist to the respective offices to encourage the DDOs to refer to it. The project team also shared the checklist to the cost centers through post and email.

5.6 POPS Rollout:

One of the biggest challenges in this project was to ensure that POPS is adopted by all the selected offices. As with the introduction of any new technology, it is not easy for users to readily switch to it and POPS was no exception.

The formal roll out of POPS started in August 2014 when we conducted trainings for the public officials in their respective districts across Punjab. Since then we have conducted multiple rounds of training sessions for all our sample across all major districts of Punjab. In most cases the first round of training was conducted in the closest major district of office but later rounds

were conducted in the provincial capital Lahore. The average duration of training sessions was 5 hours. Officials were trained in computer labs where each official itself recorded at least one dummy transaction in POPS. In the first round of training sessions, we invited three officials from each office (DDO, one member of clerical staff who understands the paper work and one person who can operate a computer). Since not all the DDOs were computer literate, they were asked to bring someone who could operate the computer from their office; in this scenario the procuring officials worked with computer operators to complete the training of POPS. In the later rounds of training, member of clerical staff and computer operators would suffice for the purpose of training if the DDOs were unable to attend those rounds.

The first major challenge was to ensure that the officials show up to the training sessions. To ensure attendance, each line department was asked to extend the invitation to the DDOs in addition to the research team independently extending the invitation. The project team also followed up rigorously with each department to make sure the DDOs attended. Till the end of the project in June 2016, about 3,500 officials have been trained through these training sessions.

To provide continued support after the trainings, the project team set up a helpdesk which offered one-on-one guidance for POPS users. The guidance was available both in person and on phone. We also designed and shared a training manual that explained everything that POPS could do and ways of navigating the system.

Although training itself was challenging but making sure that offices actually used the system after getting trained turned out to be a far greater challenge. To check whether offices were using POPS we relied on the transaction level data from AG or DAO and checked whether the transactions that were appearing in AG or DAO data were added in POPS. If there were transactions that were in AG/DAO data but missing in POPS we reached out to the offices and asked them to enter those transactions. At the end of every week the project team sent an email to the offices explaining the status of their current adoption of POPS and identified the transactions that were not yet added in the system. Phone calls were also made to the offices through a call center to resolve any problems the users with low adoption rates had.

Offices that still did not comply were reported to their respective departments. In some cases the departmental headquarters issued show cause notices to the non-compliant offices. Eventually we were able to take the overall adoption to 73 percent. At the end of fiscal year 2015-16, POPS was used by more than 800 offices in 28 districts across 4 departments of Punjab. It had more than fifty thousand transactions worth more than 8 billion rupees.

5.7 Steering Committee Meetings:

The project was guided by a high powered steering committee which was instrumental in the effective roll out of the interventions by keeping all the major stakeholders involved and on board. It was led by the Chairman P&D and comprised of representatives from the line departments, the finance department, PITB and PRMP. The committee convened twice a year during 2014-16 in which the research team presented the progress on the major indicators and the issues which needed addressing in order to take the project forward.

POPS adoption was a major concern throughout the course of the project. For the first part of 2014-15, POPS adoption by offices was especially low specifically in the Health and HED

departments. As a result, the departments were instructed to ensure around at least 90-95% adoption of the system at their earliest. Following which the adoption showed an immediate improvement. The Health Department even held a series of training sessions in February, 2015 at the Lahore Secretariat chaired by the Deputy Secretary, Health to improve the relatively low adoption rates till then. The adoption went from 9% to 64% by the end of fiscal year 2015-16.

Subsequently the departments regularly communicated with the research team to maintain and improve the adoption of the system and ensure attendance in training sessions held for this purpose.

The adoption of POPS at the end of fiscal year 2015-16 stood at:

Department	Adoption
C&W	86%
Agriculture	84%
Health	64%
HED	57%

The Steering Committee also helped push the disbursal of imprest. The delays in the passing of bills for imprest at the AG/DAO was brought to the notice of the committee following which, the CIOT was especially called to the meeting and directed to ensure that the AG/DAO issue imprest cheques without any delay.

Budget release and honorarium were two other major indicators brought up during the Steering Committee meetings. For budget release, the departments were instructed to release the budget within 5 working days to the spending level. For honorarium, the departments were instructed to award it to the recipients after it was announced.

6. Data Collection

In addition to the data collected on the transactions conducted in offices through the Punjab Online Procurement System, this project has employed other instruments and methodologies to collect data.

1. Transaction/Purchasing Data Collected in Field and via the Call Center

For Drawing and Disbursing Officers who did not adopt the Punjab Online Procurement System, data was collected from them in their offices using specially designed instruments. In addition, this data was also collected through a call center using a specially designed online portal.

2. Dice Games

Drawing and Disbursing Officers were engaged to play the Dice Game where they had to roll a die 42 times with the incentive to win a mug or a pen if they achieved a higher score than their peers. This game was a proxy to decipher which Officer was more likely to cheat given an incentive to win a mug or a pen. DDOs' participated in the dice game at training sessions and during field visits by the research team.

3. End line Surveys

Data on Interventions, DDO Behavior and Procurement Practices was collected at the end of the Fiscal Year 2015-16.

4. IQ tests

The DDOs were given IQ test in the form of Ravens matrices to determine how best they can respond to the interventions, given their abilities.

These were conducted along with the end line surveys.

4. DDO Demographic and Transfers data

Data on the demographics of DDOs such as their education, tenure, experience etc. was collected both via information sessions by researchers and the call center. Also, since transfers are very frequent in some administrative departments, the call center was employed to regularly track the movement of DDOs in the offices.

5. Intervention Implementation Data Collected through Government Agencies, Call Center and In house Calls.

In order to rollout the interventions, data such as the budgetary estimates and expenses for an office was collected. For the rollout of imprest, data on pre-approved imprest limits and the closing balance of offices was collected.

All this data has been cleaned, assimilated and analyzed to give the results which are summarized in the next section.

7. Methodology and Results

7.1 Qualitative findings

In order to determine the effectiveness of the policy reforms, insights and experiences from DDOs and their staff are crucial; not only at the beginning of the project but also throughout its course. In addition to surveys, both formal and informal meetings with the DDOs and their staff gave an important perspective on the 'ground realities' of procurement and the DDOs perception of the project. The challenges faced in rollout have already been discussed, the following paragraphs detail the experiences and feedback from the point of view of the DDOs and their staff during the course of the project in context to how the interventions benefited them and the difficulties they still faced. Since most of the rules interventions were implemented in 2015-16 due to the mountain of bureaucracy that had to be moved, their feedback was very important to understand the effectiveness and gaps in the policy reforms.

Whilst interacting with the government officials in sessions and otherwise, they often brought up recurring issues, both that were directly being addressed by the project or indirectly could be helped by the policy reforms.

To start with, the research team was inundated with requests for the provision of trainings on the procurement process and how to go about it. A lot of offices did not have specialized

staff to handle procurement where clerks or registrars were responsible for purchasing in addition to their own jobs. In a majority of cases, it is the clerk and not the procurement officer who goes to the market to ferret out information about the item that is to be procured and it is the clerk who would finalize all the documents and visit the AG/DAO to get the bill approved. The only contribution of the DDO in all the procurement process is that he/she signs the final documents. Whenever this particular staff member was transferred (which was often), this cycle began again.

One of the fundamental problems that the procurement staff has to face is the ambiguity in the taxes that are to be levied on any purchase. Whether these taxes are to be calculated on the gross amount or the net amount and the total deductibles are also not clear. This uncertainty leads to a market of informal payments between the staff and the AG Office.

Furthermore, the government officials are supposed to buy from registered vendors. However, offices located in villages or remote areas often have few or no registered vendors. Even in urban cities it is difficult to change vendors as procurement officers have to look for registered vendors. This leads to middlemen being involved who help officials with the receipts. For example, if there is no registered vendor in the nearby vicinity, a receipt of procured good like 'chair' would be made by registered vendor who does not even sell this item. And then naturally this middlemen has to be compensated for his services.

Almost all of these problems are linked to the AG/DAO as the bills have to be processed there. The AG/DAO however does little to reduce this uncertainty or lack of knowledge in the pre-audit process. The AG checklist greatly helped the DDOs in removing this ambiguity. The DDOs/ procurement staff now had clear guidelines that told them how to prepare bills and were very appreciative of it. Although there were still officials that claimed that the AG/DAO still refused to accept bills without giving any substantial reason and required a certain 'compensation' to be added[1]; even they recognized the benefits of a checklist as the AG/DAO does prioritize the completion of documents for processing a bill.

Even before pre-audit, an office must have sufficient budget released to ensure that transactions can be planned and take place. Despite all the delays due to the bureaucratic hurdles, many DDOs benefited as the budget was still released earlier than usual. However, there were gaps in communication from the department to the DDOs and AG about the release of budget which the team tried to bridge by coordinating with the departments. A common complaint by the DDOs was that the allocated budget for offices in certain heads was revised over the course of a year, this meant that if the DDO had purchased something under certain head and if the budget is reduced after the revision it would mean that the spent amount in that head had exceeded the allotted budget making DDOs and the staff rush to DAO/AG to sort this issue. During the end of the fiscal year 2016, The DDOs also stated that they had to travel to Lahore for this issue and to make sure the budget was online after a change in the rules.

Imprest can provide the liquidity needed to overcome these problems and make timely payments to vendors. A common knowledge is that DDOs rather than buying goods on credit buy goods with their personal cash to avoid interest that is to be paid which increases the price of the good so much that DDOs are scared of being probed by the Audit Department. The other reason for buying good with personal cash is that a lot of vendors do not offer the

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[1] Anecdotally, according to the DDOs and their staff, this was a standard 5%

service of credit buying forcing the DDOs to act this way. Imprest can provide the liquidity needed to overcome these problems and make timely payments to vendors. Although imprest was disbursed towards the end of 2015, DDOs still immensely benefited from it as they mostly carry out the major part of their transactions in the second half of the year. The procurement staff was especially glad of cash in hand as they could easily conduct their day to day expenses.

However, there was reluctance in some of the DDOs as these bills still had to be replenished from the AG/DAO at the end of the year. They feared that these bills could be rejected at the end of the fiscal year. A few offices had such a small budget, they did not feel the need to use imprest while some were wary of keeping the cash safe. Some offices were unsure on how to maintain records for imprest. For these reservations, information sessions were held and a detailed imprest guide circulated.

On the whole, the offices acknowledged the facilitation cash in hand can add to generic procurement especially since they did not have to borrow or make the vendors waits for their payments.

In this environment, providing motivation to the DDOs is of utmost importance. The incentives scheme was met with a lot of enthusiasm from the DDOs who promised to exert the best of their abilities and perform better. In the sessions held after the first honorarium was released, DDOs were even more encouraged to improve their performance. However, in all these interactions in addition to the PEC meetings, there was a suggestion to award the honorarium to the supporting staff as well. According to the majority of the ministerial staff (such as clerks, registrars and assistants), they perform the bulk of the procurement activities and should be given the incentive too. Since the DDO has the final sanctioning authority, the honorarium is awarded to the DDO as the liability also falls on him/her if anything goes wrong, and they have the greatest stake in improving the procurement efficiency of their offices. The DDOs were encouraged to share the honorarium with the supporting staff.

POPS, a major achievement of the project, was designed not only to collect procurement data but also so that users can benefit from digitized record keeping. However, in some cases lack of infrastructure (such as computers and internet) and non-availability of trained personnel at offices affected the adoption rates. This mostly occurred in offices that were small, (such as small colleges), or remotely located. Staff who were not very literate in the use of computers often requested training sessions conducted over weeks. The research team and departments were on hand to facilitate such offices as much as possible. The departments also circulated lists so that offices facing technical or other issues could partner up with offices with high adoption rates.

As difficult as it may seem to change the procurement system, DDOs appreciate the project as a step forward to implementing efficient procurement reforms in the country.

A combination of all the treatments provided together has perhaps had the best response. The DDOs and procurement staff also look forward to the future potential of this project, like the availability of a price list of items in POPS from the information available or the move towards e-procurement effectively limiting the role of the AG/DAO.

7.2 Quantitative Findings

To compare different purchases and analyze them, we need to make sure that we are comparing like for like. In particular, we need to adjust for the fact that people may be buying different types of goods, so we cannot directly compare the prices they pay, unless we make sure we are comparing purchases of exactly the same good, in the same place, at the same time, and with the same delivery and after-sale service conditions etc. In order to deal with this, we use the detailed data collected through the POPS system to adjust all prices paid for the quality of the item being purchased. This allows us to create a quality-adjusted price paid for each item. It also allows us to create an index for the quality of the product being bought.

To do this we follow Bandiera *et al.* (2009) and run a hedonic regression of the following form

$$p_{igt} = X_{igt} + \delta_g q_{igt} + \gamma_{1g} t + \gamma_{2g} t^2 + \gamma_{3g} t^3 + dept_{igt} + dist_{igt} + \mu_{igt}$$

where p_{igt} is the log of the unit price paid in transaction *i* for good *g* at time *t*; X_{igt} is a vector of observables including all the good's attributes that might affect quality and price; δ_g are good-specific bulk discounts, γ_{1t}-γ_{3t} are good-specific, cubic time-trends, *dept_{igt}* are department fixed effects; *dist_{igt}* are district fixed effects; and μ_{igt} is an error term. The two items of interest from this regression are the residuals $\hat{\mu}_{igt}$ which will become our measure of the quality-adjusted prices people are paying, and the fitted values $\hat{p}_{igt}$, which are our index of the quality of the product being bought.

7.3 Correlates of Prices Paid

Even after adjusting prices paid for the exact items that are being purchased, where it is being purchased, and when it is being purchased, there is still a large amount of variation in prices paid. So a natural question to ask is what is associated with paying higher prices? To provide some suggestive evidence on this, we correlate the quality-adjusted unit prices paid with various observable features of the individuals and organizations making purchases.

**Fi**gure 7: Correlation of Prices Paid with Dice Game Scores
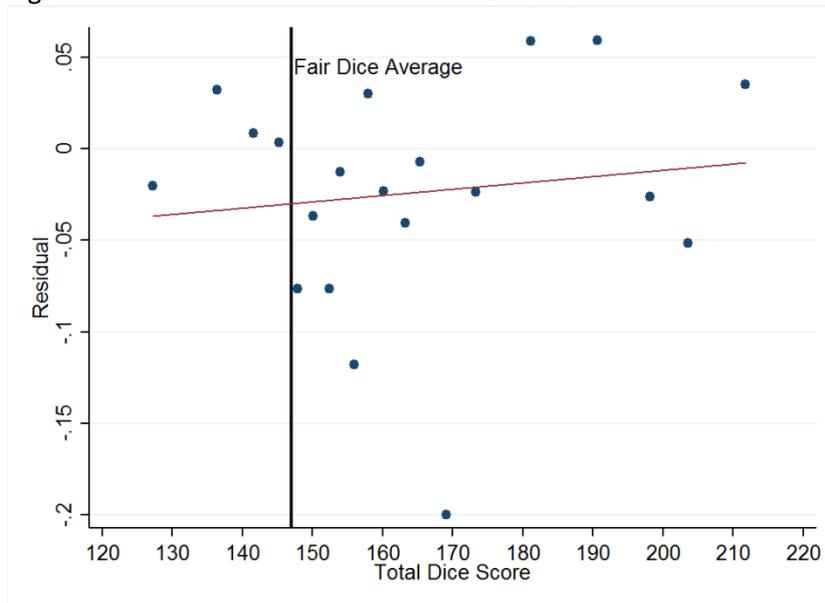
Figure 7 shows the correlation between the quality-adjusted prices paid ("Residuals") and the total score that the DDO reported in the dice game. The vertical line denotes the score that would be expected on average by rolling a fair die 42 times. The figure shows that as we might expect, DDOs who report a higher score in the dice game, are also more likely to be overpaying for their purchases. However, it is notable that the association is not particularly strong, perhaps because overpaying is not driven as much by the honesty and integrity of the officers, but more by the constraints they face and the effort they put into surmounting them.

Similarly, demographic characteristics of the DDOs do not seem to be related strongly to the prices that they pay. Figures 8-10 show correlations of quality-adjusted prices with age, gender, and whether the DDO is originally from the same district as the office he or she serves in. While older DDOs do seem to pay lower prices, neither gender nor the location of the DDO's home are systematically related to prices.

Figure 8 Correlation between Quality-Adjusted Price and Age
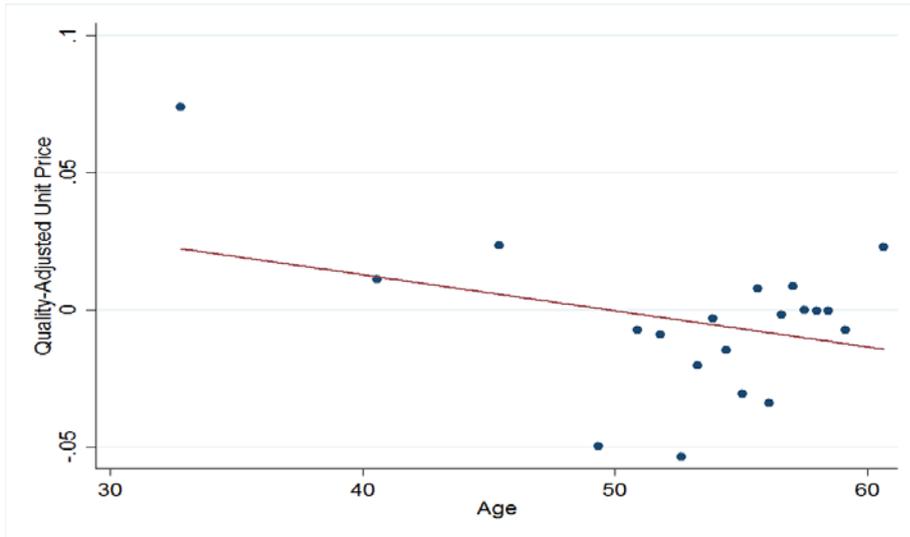
Figure 9 Correlation between Quality-Adjusted Price and Gender
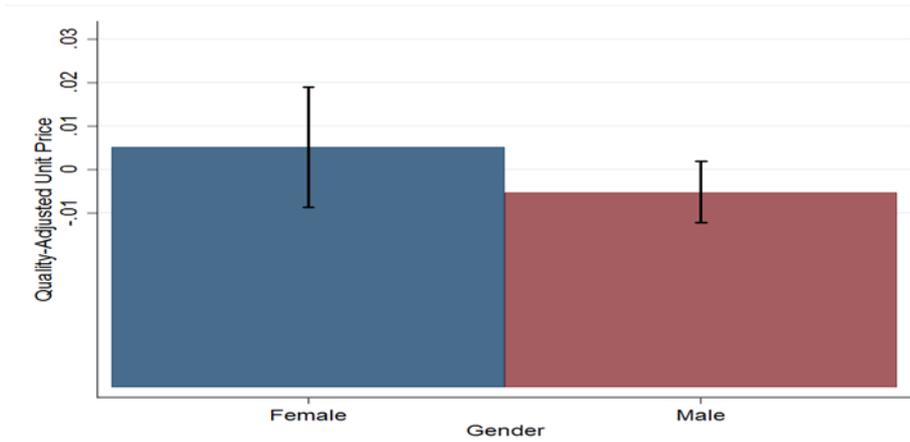

Figure 10 Correlation between Quality-Adjusted Price and District
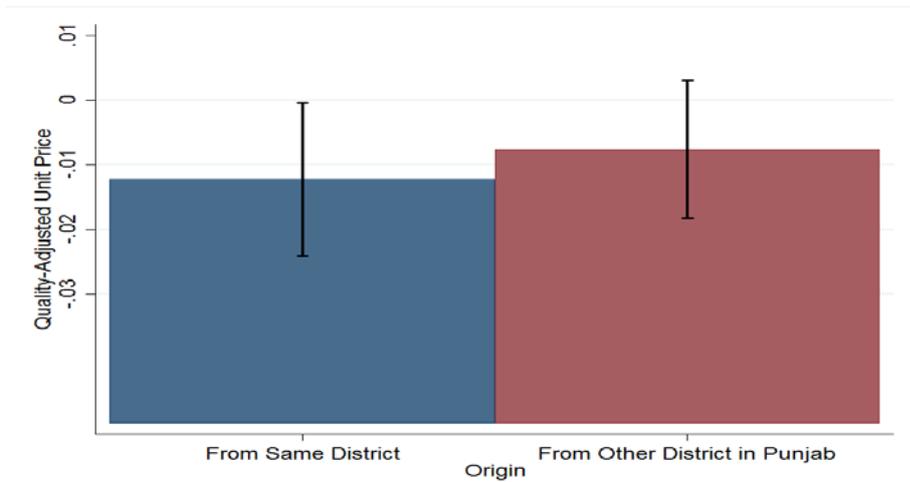
While demographic characteristics of the DDOs are not strongly related to prices, experience and education are, and they reveal that the more entrenched civil servants are the ones paying higher prices across a variety of dimensions. Figure 11 captures this finding in a single picture showing the correlation between prices paid and the date on which the DDO entered the civil service. The DDOs are ordered according to their date of induction and grouped into 20 equally-sized groups. Each dot represents the average quality-adjusted price paid by a group of DDOs with similar induction dates. The line shows a regression line from a regression of quality-adjusted price paid on induction date using the full, individual-level data. The picture clearly shows that DDOs who entered the civil service earlier are the ones paying higher prices.

Figure 11 Correlation between Quality-Adjusted price and date of induction
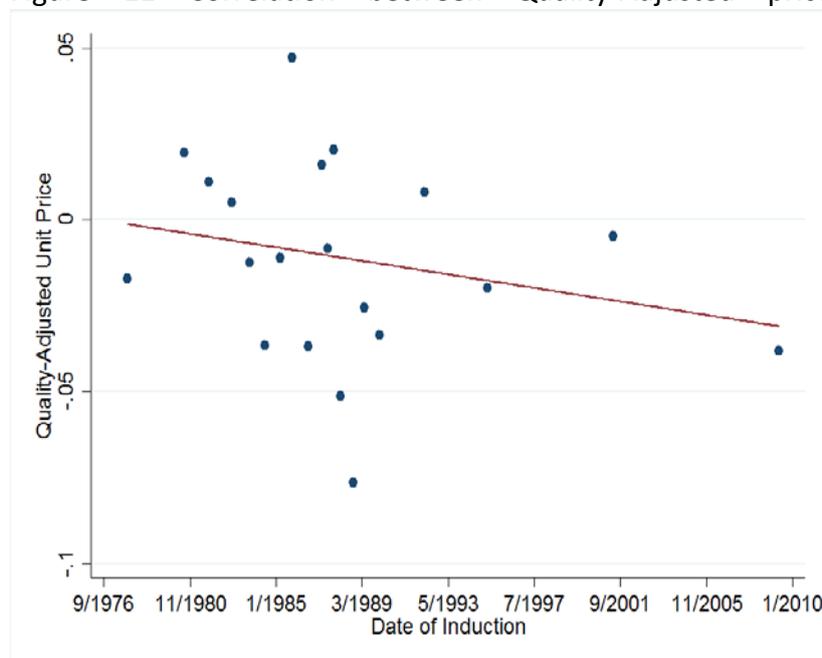
To investigate this further, we first look at how prices paid vary with the seniority of the DDO. Figure 12 shows the average quality-adjusted prices paid by DDOs at each grade on the civil service scale. We can clearly see that the officers achieving the best performance are those at the lower grades, particularly those at grade 16.

Figure 12: Correlation between Quality Adjusted Price and Civil Service Grade
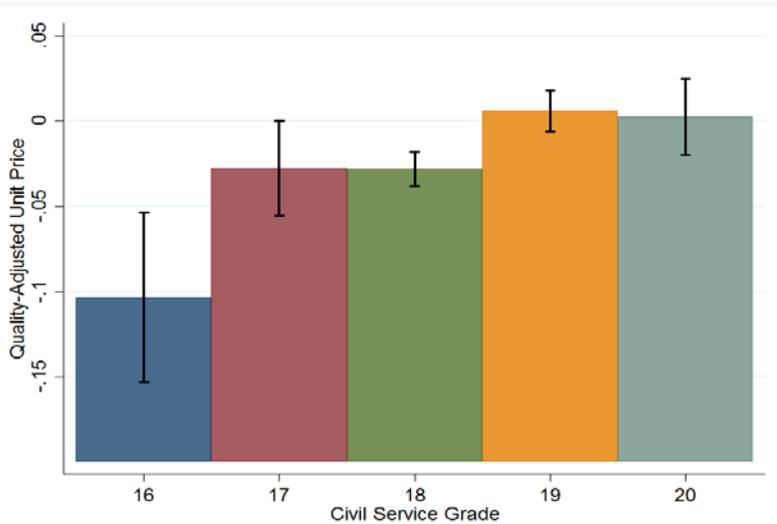
Since the way that all the departments are organized is very different, Figure 13 explores whether this pattern is repeated across all the departments or whether it is a feature of some departments but not others. The figure suggests that the overall pattern is driven mostly by very good performance of grade 16 officers in the agriculture department.

Figure 13: Correlation between Quality-adjusted price and civil service grade by department

Panel A: Agriculture Department	Panel B: Communication & Works Department
Panel C: Health Department	Panel D: Higher Education Department
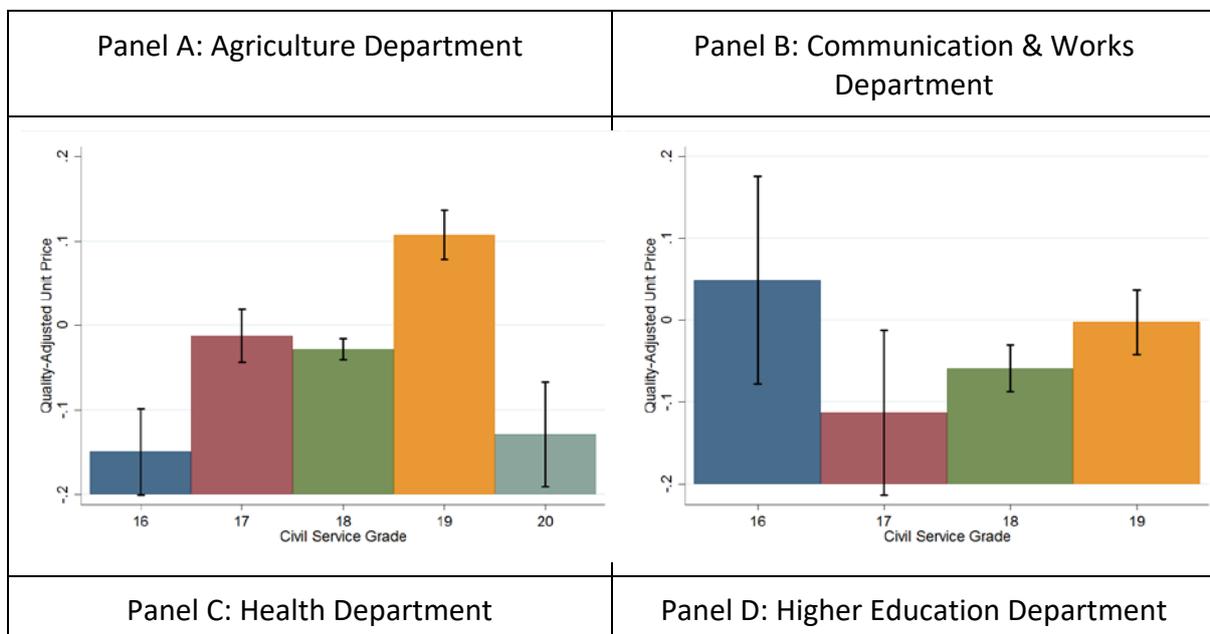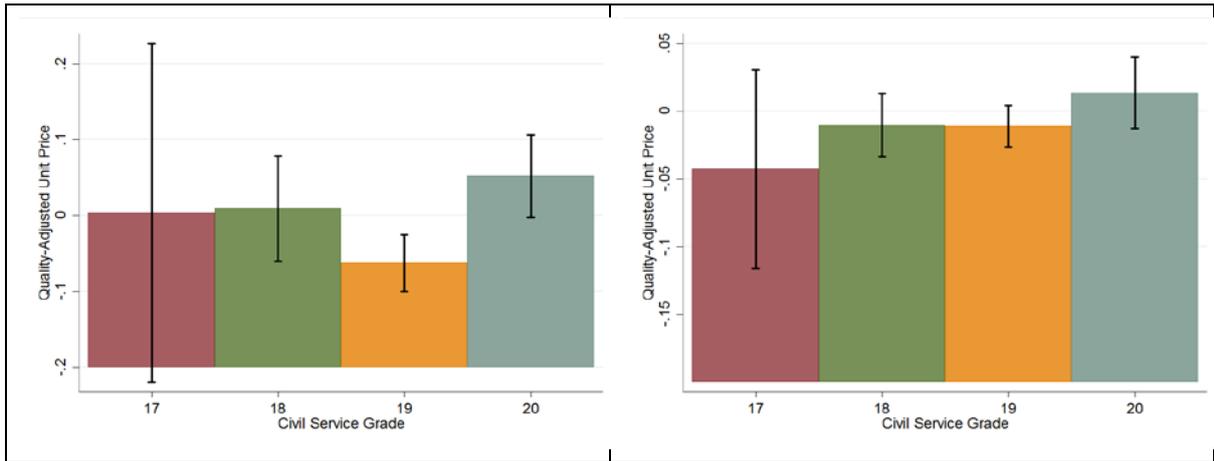
These patterns are highly suggestive that younger, less entrenched officers are able to perform better. To investigate further what it is that allows them to achieve this, we next turn to their skills. First, Figure 14 looks at the correlation between quality-adjusted prices paid and the education level of the DDOs.

Figure 14: Correlation between Quality Adjusted Price and Education Level
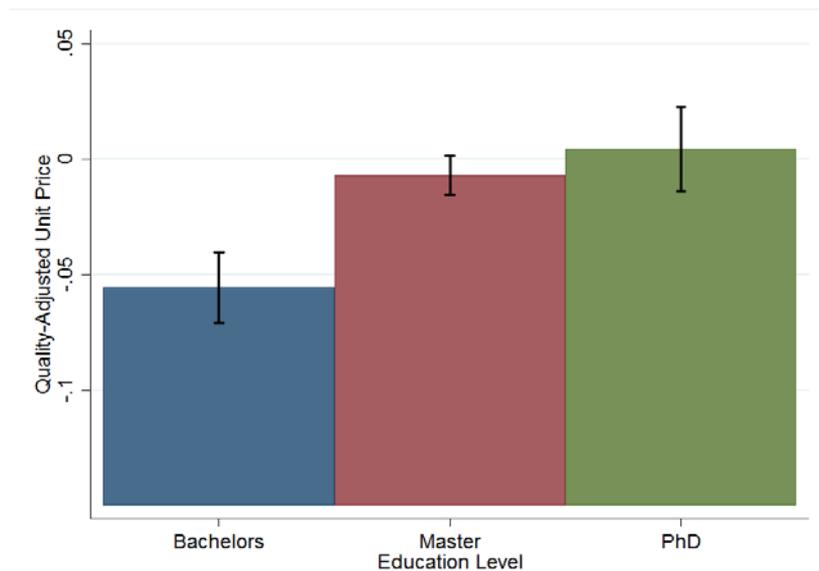
The figure shows that DDOs with higher education levels actually end up paying higher prices, not lower prices. This is also consistent with the idea that it is the more junior officers who are able to achieve better prices for the items they purchase though. In Figure 15 we look at these patterns department by department.

Figure 15: Correlation between Quality-Adjusted price and Education Level by department

| Panel A: Agriculture Department	Panel B: Communications & Works Department

Panel C: Health Department	Panel D: Higher Education Department
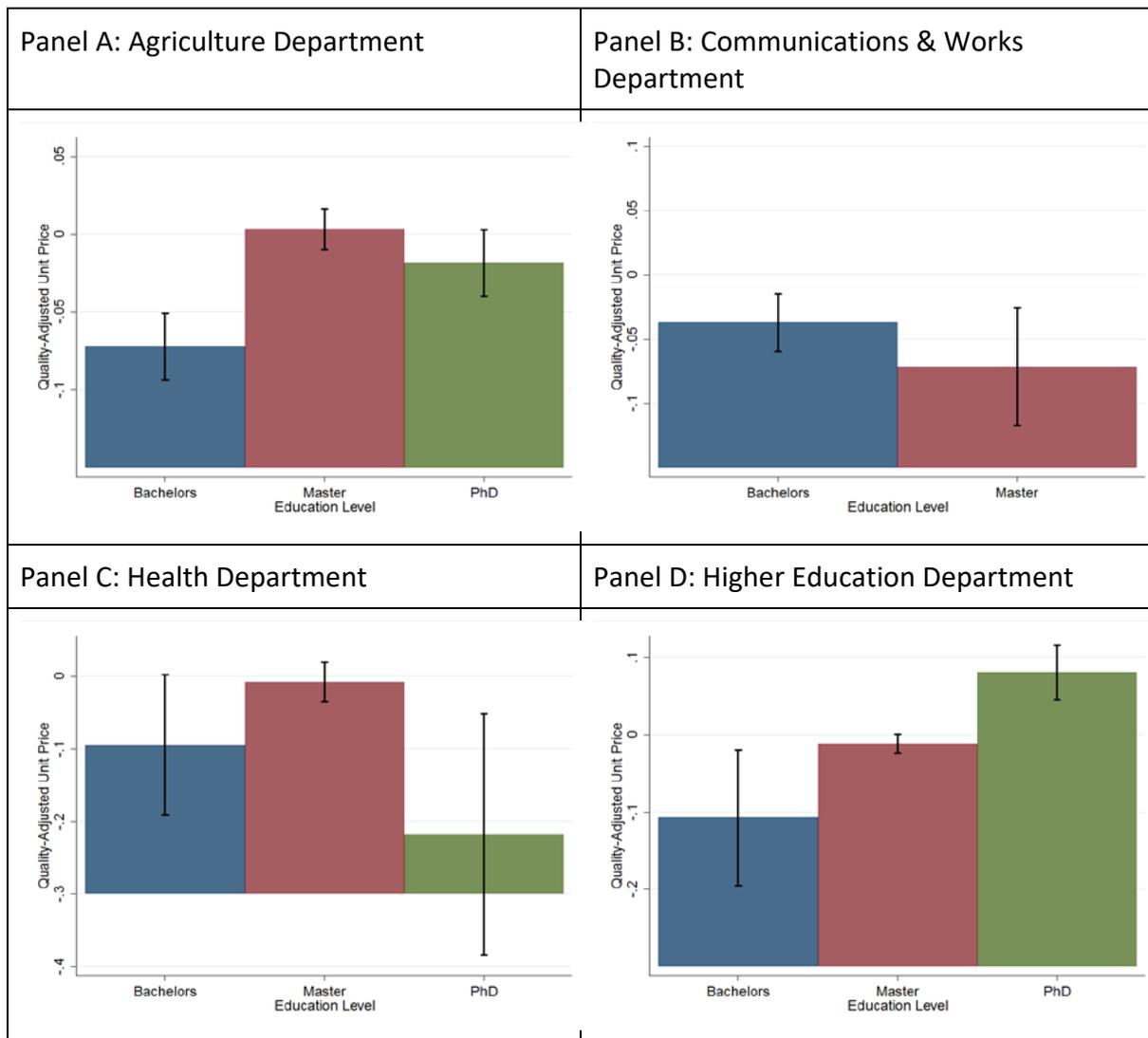
The overall pattern of DDOs with more education paying higher prices is strongly evident in the agriculture and higher education departments, but not in communications & works, or the health department.

Finally, we consider a very direct measure of the skills the DDO has: his or her computer literacy. As more and more of procurement becomes digitized, computer literacy is becoming more and more important in procurement. Moreover, as more and more information about prices is available through the internet, being able to access and process this information is crucial if DDOs are to be able to find and achieve low prices. Figure 16 shows average quality-adjusted prices for DDOs who report different levels of computer literacy.

Figure 16: Correlation between Quality-Adjusted price and computer literacy
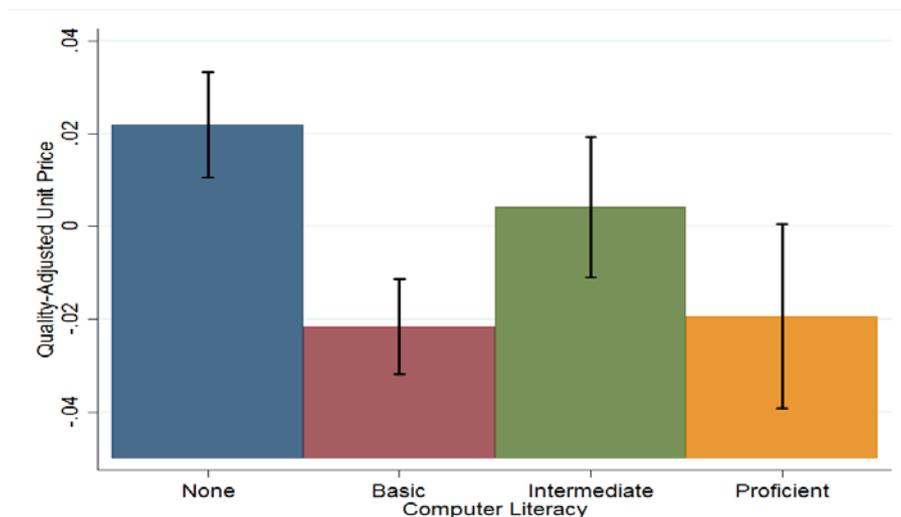
As the figure clearly shows, DDOs with low levels of computer literacy are those who are paying higher prices. This figure highlights two key lessons for the reform of procurement in settings like Punjab. First, as technology becomes more and more important in day to day life, it is those with the necessary skills who will be able to benefit. Second, lack of those skills can act as a key impediment to the ability of technology-based reforms to fully achieve potential improvements. Hence, ensuring that civil servants have the necessary skills and infrastructure to interact with the digital world is key.

7.4 Impacts of the treatments

In this section we present estimates of the impact of the three experimental interventions. To provide good estimates of the impacts of the reforms, we need to address the fact that, as discussed in section 5, take up of the treatments was incomplete. The DDOs who chose to take up the treatments may differ systematically from those who were assigned to receive the treatments but chose not to take them up. To deal with this, we use an instrumental variables approach that uses the randomly-assigned treatment to predict the treatment that DDOs actually receive and hence remove the bias from the choices of DDOs of whether or not to take up the treatments.

Table 2 below presents the results. These results should be treated as very preliminary, but they do show some encouraging trends. Column (2) shows that the incentives treatment reduced quality-adjusted prices by about 4.8%, that the rules treatment reduced quality-

adjusted prices by 4.1%, and that the combined treatment had an effect roughly equal to the sum of the two individual effects at 8.3%. As column (4) shows, there are no discernible effects on the index of product quality, so it is not the case that DDOs are achieving these lower prices by reducing the quality of the items they purchase.

Table 2: Effects of Policy Interventions on Procurement Prices and Quality

	Quality-Adjusted Prices		Quality Index	
	(1)	(2)	(3)	(4)
	OLS	IV	OLS	IV
Incentives	-0.047***	-0.048**	0.011	0.022
	(0.0111)	(0.015)	(0.0186)	(0.0256)
Rules	-0.032**	-0.041**	-0.032	-0.024
	(0.010)	(0.013)	(0.0169)	(0.0221)
Both	-0.079***	-0.083**	-0.034	-0.013
	(0.010)	(0.015)	(0.0173)	(0.00244)
Constant	-0.226***	-0.222	8.044***	8.034***
	(0.037)	(0.038)	(0.0625)	(0.0631)
# Observations	26,093	26,093	26,093	26,093

The results suggest that there is significant scope for government officers in charge of procurement and their staffs to improve the value for money achieved in procurement. Direct financial rewards that are tied to their performance in achieving value for money-the stated aim of procurement in Punjab-successfully spur the required effort to improve performance. In ongoing work, we are performing a detailed cost-benefit assessment of the financial rewards comparing the benefits from lower prices paid to the cost of making payments to procurement officers.

Our preliminary results also show that when procurement officers are given more discretion in how they perform their procurement duties, they are able to use this additional flexibility to improve procurement outcomes. This suggests that the existing regime of rules was likely too stringent. In order to reduce the scope for misbehavior, the rules put in place for procurement also sacrificed value for money. Since relaxing the rules doesn't cost the government anything, revising rules to give bureaucrats more discretion while also holding them accountable for better-measured outcomes is potentially a very promising way to have a large impact in improving the efficiency of procurement at a low cost.

These results are still preliminary, but are very encouraging. In particular, they are based on a subset of the ten most frequently purchased items. We also have not yet adequately dealt with the possibility that some offices may be reporting purchases incompletely or not at all and that this may contribute to the results we are seeing. This is ongoing work which we look forward to disseminating widely as soon as possible.

8.   POPS Integration and Policy Impact

8.1 POPS Integration:

POPS is currently used by only those public bodies which are part of this project in four departments and thirty four districts of Punjab, the evidence gathered from current users will determine its applicability to whole Punjab. The system has the potential to be scaled up to cover all the purchases within the public offices and hence act as a catalyst of e-procurement in the provincial government. In future POPS aims to act as a platform to the public officials where supervisors could monitor the procurement plans of their sub offices; it'd allow better accounting and monitoring of public bodies along various margins such as speed of procurement, following of processes, prices paid etc. POPS has the potential to act as a market place that links public procurement agencies with vendors, allowing information of vendors and the history of their transactions at the disposal of procuring agencies. In a longer run, POPS will enable smart auditing of procuring agencies by getting rid of paper trail, putting more transparency at the disposal of provincial government.

Following on from this project, the Research Team has been asked by the Government of Punjab to support their public procurement regime reforms. As the Chief Minister has embarked on a process of procurement reforms in Punjab, the research team has been invited to actively participate in this process by guiding Punjab Procurement Regulatory Authority (PPRA) on the design of its reform agenda and assisting in its implementation.

The government has also expressed a desire to mainstream the Punjab Online Procurement System by integrating it with other systems currently under development for larger purchases, scaling it up to the entire province and all departments, and developing a series of dashboards to present summaries of the data to senior officials.

The research team has been working closely with PPRA and PITB on mainstreaming POPS, training PPRA employees on updating the system, engaging line departments and stakeholders in ensuring success of this integration and policy reform process. This engagement will lead to the development of an integrated online procurement system and a revised POPS manual.

The research team has also been planning to submit a policy report for government stakeholders on introducing POPS in government systems and on supporting development of PPRA's procurement reform agenda and to hold a workshop with major stakeholders to disseminate the findings

Possible implications of POPS:

- Improved budgetary procedures- can use it to prepare and announce release of budget online
- Direct submission of bills for pre-audit – eliminate manual process that creates
- delays and a market for speed payments
- Basis for smart audit – flag suspicious transactions, monitoring by supervisors- create transparency and accountability
- Online market place- increase in the number of vendors and competition

8.2 Other Policy Impact

In addition, The Research Team met with Finance Minister and Finance Roadmap Team to apprise them of the project findings to date so that it may inform the process of Finance Roadmap in the province.

9. Policy Recommendations and Conclusion

Addressing weak state capacity for building effective states is a key priority for international growth and development agenda. A key aspect of state capacity is in allocation of public goods and in ensuring efficiency and effectiveness of public spending. Ensuring efficiency of public procurement is thus important not only for its direct benefits - ensuring optimal utilization of public goods - but also for its spillover benefits of ensuring effective accountability of governments. However, despite lip service to the concepts of efficiency and economy in procurement policy documents, the practice of public procurement has focused on procedural, legalistic aspects - compliance with formal rules rather than on efficiency and value for money.

This is partly because of difficulties in measuring efficiency of public procurement. Without accurate measurement, it is hard to identify the source of inefficiency (active vs passive waste), to design rules and provide incentives to promote efficiency. Existing evidence from Bandiera et al. (2009) demonstrates most of the waste in public procurement coming from passive waste.

This project was primarily aimed at measuring efficiency of procurement, understanding the causes of inefficiency in procurement, and designing and evaluating interventions that promote efficiency. It has made some progress towards these - the policy work has been jointly done with the government in a mode of co-generation of innovative policy knowledge, the forthcoming academic paper will address the academic issues.

Annex A
Selected Objects

	Table 1: Selected Object Codes	
Object Code	**Object Name**	**Main Object Name**
A03004	Furnace Oil - Non Operational	Operating expenses
A03070	Others	Operating expenses
A03170	Others	Operating expenses
A03204	Electronic Communication	Operating expenses
A03205	Courier And Pilot Service	Operating expenses
A03206	Photography Charges	Operating expenses
A03270	Others	Operating expenses
A03304	Hot And Cold Weather	Operating expenses
A03305	POL For Generator	Operating expenses
A03370	Others	Operating expenses
A03401	Charges	Operating expenses
A03405	Rent Other Than Building	Operating expenses
A03408	Rent Of Machine & Equipment	Operating expenses
A03410	Security	Operating expenses
A03470	Others	Operating expenses
A03501	Machinery And Equipment	Operating expenses
A03502	Buildings	Operating expenses
A03503	Motor Vehicles	Operating expenses
A03504	Computers	Operating expenses
A03506	Medical Machinery And Technical Equipment	Operating expenses
A03570	Others	Operating expenses
A03901	Stationery	Operating expenses
A03902	Printing And Publication	Operating expenses
A03904	Hire Of Vehicles	Operating expenses
A03905	Newspapers Periodicals And Books	Operating expenses
A03907	Advertising & Publicity	Operating expenses
A03921	Unforeseen Exp. For Disaster Preparedness	Operating expenses
A03933	Service Charges	Operating expenses
A03940	Unforeseen Expenditure	Operating expenses
A03942	Cost Of Other Stores	Operating expenses
A03955	Computer Stationary	Operating expenses
A03970	Others	Operating expenses
A03971	Cost Of State Trading Medicines	Operating expenses
A03972	Expenditure On Diet For Patient	Operating expenses
A03978	Free Text Books	Operating expenses
A09105	Transport	Physical assets
A09107	Furniture And Fixture	Physical assets
A09108	Livestock	Physical assets
A09170	Others	Physical assets

A09204	License Fee For Software	Physical assets
A09302	Fertilizer	Physical assets
A09303	Coal	Physical assets
A09370	Others	Physical assets
A09401	Medical Stores	Physical assets
A09402	Newsprint	Physical assets
A09403	Tractors	Physical assets
A09404	Medical And Laboratory Equipment	Physical assets
A09405	Workshop Equipment	Physical assets
A09406	Storage And Carrying Receptacles	Physical assets
A09407	Specific Consumables	Physical assets
A09408	Generic Consumables	Physical assets
A09409	Medical Stocks	Physical assets
A09410	Life Saving Medical Supplies	Physical assets
A09411	General Utility Chemicals	Physical assets
A09412	Specific Utility Chemicals	Physical assets
A09413	Drapery Fabrics Clothing And Allied Materials	Physical assets
A09414	Insecticides	Physical assets
A09470	Others	Physical assets
A09501	Transport	Physical assets
A09502	Diplomatic Cars	Physical assets
A09503	Others	Physical assets
A09601	Plant And Machinery	Physical assets
A09602	Cold Storage Equipment	Physical assets
A09603	Signaling System	Physical assets
A09604	Railways Rolling Stock	Physical assets
A09701	Furniture And Fixtures	Physical assets
A09702	Unkempt Furnishings	Physical assets
A09801	Livestock	Physical assets
A09802	Purchase Of Other Assets – Others	Physical assets
A09803	Meters & Services Cables	Physical assets
A09899	Others	Physical assets
A13101	Machinery And Equipment	Repairs and maintenance
A13199	Others	Repairs and maintenance
A13201	Furniture And Fixture	Repairs and maintenance
A13470	Others	Repairs and maintenance
A13570	Others	Repairs and maintenance
A13701	Hardware	Repairs and maintenance
A13702	Software	Repairs and maintenance
A13703	I.T. Equipment	Repairs and maintenance
A13920	Others	Repairs and maintenance

Selected Districts

Table 2: Selected Districts	
Sr.	**District**
1	Attock
2	Bahawalpur
3	Chakwal
4	D. G. Khan
5	Faisalabad
6	Gujranwala
7	Gujrat
8	Hafizabad
9	Jhang
10	Jhelum
11	Kasur
12	Khanewal
13	Khushab
14	Lahore
15	Lodhran
16	Multan
17	Muzaffargarh
18	Nankana
19	Narowal
20	Okara
21	Pakpattan
22	Rahim Yar Khan
23	Rawalpindi
24	Sahiwal
25	Sargodha
26	Sheikhupura
27	Sialkot
28	Vehari

Annex B

Item Names
Bottled Water
Tissue Paper
Curtain
Bottle (Standard)
Duster or Cleaning cloth
Paint or Varnish
Whitening Fluid OR Correction Pen, Blanco
Eraser or Rubber (s)
Pencil Sharpener
Board Duster
Chair OR Stool
Balti or Bucket
Pencil
Stamp or Rubber Stamp
Ink
Punching Machine
Sooti Thread/*Dori*
Switchboard
X-Ray Films
Tyre
Air Freshener
Tea Set
Ice OR Ice Block
Paper
Tape
Heater
(Manual) Flower Cutter or Grass Cutter or Hedge Cutter
Plastic Bag, Cloth Bag or Paper Bag
Towel
Filter paper
Water Cooler
Extension Wire
Pesticides
Rope OR *Rassi*
Bed Sheet
Carbon Paper
Cell OR Pencil Cell OR Battery Cell
Taat
USB
CDs or DVDs
Data Cable

Binding
Cloth
Glass (*Sheesha*)
Telephone Cable
Pot / *Gamla*
Pen Holder
Filters
Ethernet
Video Cable/VGA Cable
Speedometer Cable/..
Coaxial wire
Drinking Glass or Jug
Table OR Desk
Mouse
Plastic Sheet
Spoon
Paper OR Chart Paper
Keyboard
Fertilizer
Newspaper
Printing charges
Plate OR Dining Plate
Register
Brushes
Wiper
Disposable Gloves OR surgical gloves
Paint Brush
Cement
Cupboard OR Cabinet OR Almirah OR Rack
Stapler
Calculator
highlighter OR underline marker
stamp pad
Dust Bin
Coal
Pipette
Beaker
Flask
Funnel
Mild Steel
Sample Storage Bottle
Mosquito/Insect Spray
Gas Cylinder
Nail OR Screw OR Rawl Plug

Telephone Set
Paper Cutter
Hard Disk
Ruler
Lock or Door Lock or China Lock
Tag OR file tag OR File Laces
Floor cleaner / Phenyl
Gum OR Glue
Toner
Pipe
RAM
Fan
Plant Or Flower
Burette
File Cover
Chemical
Battery
Ball Point or Ball Pen
Envelope
Stapler Pins
Common Pin
Photocopy or Photocopy Charges
Thinner
Paper Clip
UPS
Scissor
Bell
Sign Board or Banner Printing
Government Forms
Power Cable
Plug or Power Plug or Light Plug
Soap OR Detergent
Floor mop OR Broom OR Soft/grass broom (*phool jharoo*) OR Bamboo sticks (*bansee jharoo*)
Electric Bulb
Electric Wire/Cable
Printer
Seed

Annex C

EBPR END LINE SURVEY

Please answer questions in the order in which they are listed – do not flip ahead to later questions or peruse the survey instrument before answering. Before answering, read only the questions on the page you are on. There are 62 questions in total, the instrument usually takes about 50 minutes to fill.

Section 1: General Questions
1. Were any of the cost centers you are DDO of part of the Evidence Based Procurement Reforms project? (select one)
   a. ☐ Yes
   b. ☐ No
   c. ☐ Don't Know

2. Please select the group your cost center(s) is/are in (select one)
   a. ☐ Incentives (1)
   b. ☐ Constraints (2)
   c. ☐ Incentives and Constraints (3)
   d. ☐ Control (4)
   e. ☒ Don't know

3. Please write down the name of the intervention/s cost centers in your group are receiving, if any

   _____
   ___

4. Please select the intervention/s that the cost centers in your group were supposed to receive (select all that you think apply)
   a. ☐ Pre-audit checklist
   b. ☐ Early budget release
   c. ☐ Imprest money / petty cash
   d. ☐ Eligibility for performance-based honorarium
   e. ☐ Punjab Online Procurement System (POPS)
   f. ☐ Other(specify) _____

5. Please select the intervention you think the cost centers in your group (not necessarily your cost center) did receive (select all that you think apply)
   a. ☐ Pre-audit checklist
   b. ☐ Early budget release
   c. ☐ Imprest money / petty cash

d.   ☐ Eligibility for performance-based honorarium
e.   ☐ Punjab Online Procurement System (POPS)
f.   ☐ Other(specify) _____

6.   Please select the interventions your cost center actually did receive (select all that you think apply)
a.   ☐ Pre-audit checklist
b.   ☐ Early budget release
c.   ☐ Imprest money / petty cash
d.   ☐ Eligibility for Performance-based honorarium
e.   ☐ Punjab Online Procurement System (POPS)
f.   ☐ Other(specify) _____

Section 2 – Performance Based Honorarium

7.   If your group was in the group for performance based honorarium, why was the honorarium being given? (select only one)
a.   ☐ For taking part in the project
b.   ☐ For attending training sessions
c.   ☐ For entering data into POPS
d.   ☐ For using less than the allocated budget
e.   ☐ For using all the allocated budget
f.   ☐ For ensuring all documentation was complete
g.   ☐ For conducting good procurement
h.   ☐ For conducting better procurement than others
i.   ☐ Don't Know

8.   How many people were supposed to receive honorarium? (select only one)
a.   ☐ Everyone in the performance based incentives group
b.   ☐ Everyone who entered data into POPS
c.   ☐ Some other number: _____
d.   ☐ Don't Know

9.   Were you awarded a performance honorarium?
a.   ☐ Yes
b.   ☐ No
c.   ☐ The previous DDO for this office was awarded performance honorarium

10. Was that honorarium released by your department?
a.   ☐ Yes

b.   ☐ No

11.   Did you know that other DDOs received a performance honorarium?
a.   ☐ Yes
b.   ☐ No

12.   Do you think that the performance honorarium reflected DDOs' performance on procurement?
a.   ☐ Yes
b.   ☐ No

13.   If you selected no, what do you think it reflected? (select one)
a.   ☐ It was random
b.   ☐ It went to cost centers that entered data into POPS
c.   ☐ It went to well-connected DDOs
d.   ☐ It went to DDOs for other reasons:_____

14.   If you think that the performance honorarium reflected DDOs' performance on procurement, how do you think the performance was measured? (select all that apply)
a.   ☐ Speed of procurement
b.   ☐ Quality of procured goods
c.   ☐ Price of procured goods
d.   ☐ Suitability of goods for the purpose they were intended
e.   ☐ Value for money achieved in procurement
f.   ☐ Compliance of the procurement process with all legal procedures
g.   ☐ Use of NTN/SRTN registered vendors
h.   ☐ Other _____

15.   Do you think the honorarium encouraged DDOs to try and improve their performance?
a.   ☐ Yes
b.   ☐ No

16.   If you answered no, why not? (select all that apply)
a.   ☐ Because it was not enough
b.   ☐ Because DDOs did not believe performance would be measured properly
c.   ☐ Because there is nothing DDOs can do to improve performance
d.   ☐ Because DDOs did not know how performance was going to be measured
e.   ☐ Because DDOs though the evaluation would be biased to suit well-connected DDOs
f.   ☐ Because DDOs do not like competing with other
g.   ☐ Because performance is based on the motivation of staff other than DDOs
h.   ☐ Other reasons: _____

17.   Did the prospect of competing for honorarium inspire you to try and conduct better procurement?
a.   ☐ Yes
b.   ☐ No

18.   Do you think your procurement improved?
a.   Much Better
b.   Somewhat Better
c.   Neither Better nor Worse
d.   Much Worse
e.   Somewhat Worse

(Please turn the page)

Section 3: Pre-audit checklist

19.   Did your cost center receive the AG/DAO checklist? (select one)
a.   ☐ Yes
b.   ☐ No
c.   ☐ Don't Know

    If you selected option "*b*" or "*c*" for the question above, please leave rest of this section.

20.   Did you read the pre-audit checklist? (select one)
a.   ☐ Yes (please continue to question 20)
b.   ☐ No (please continue to section 4)

21.   Did you or your cost center staff find the checklist helpful or useful? (select one)
a.   ☐ Yes (please continue to question 21)
b.   ☐ No (please continue to question 22)

22.   If yes, please specify why: (If you or your cost center staff did find the checklist helpful, why?) (select all that apply)
a.   ☐ because it specified what documents were needed for pre-audit, which I did not know before
b.   ☐ because it specified what documents were needed for pre-audit, which my staff did not know before
c.   ☐ because it was an easy and ready reference
d.   ☐ because my cost center could ensure all required documents were attached to a bill before submitting to the A.G. Office / District Accounts Office (DAO)
e.   ☐ because the AG/DAO followed the checklist, even before it was issued
f.   ☐ because the AG/DAO followed the checklist, which they did not do before
g.   ☐ because it allowed me or my cost center's staff to identify when the AG/DAO was rejecting a bill without valid cause
h.   ☐ because it allowed me or my cost center's staff to prevent the AG/DAO from rejecting a bill without valid cause
i.   ☐ because it allowed me to ensure my staff attached all relevant documents to the bills
j.   ☐ other _____

23.   If no, please specify why: (If you or your cost center staff did not find the checklist helpful, why?) (select all that apply)
a.   ☐ because my staff already knew what documents were needed for pre-audit
b.   ☐ because it was difficult to understand

c.   ☐ because we did not always have the documents we were required to attach

d.   ☐ because the AG/DAO did not follow the checklist, even after it was issued

e.   ☐ because even when I or my staff identified that the AG/DAO was rejecting a bill without valid cause, we could not do anything about it

f.   ☐ because even when I or my staff complaint to higher authorities that the AG/DAO was rejecting a bill without valid cause, it had no effect

g.   ☐ because asking the AG/DAO to follow the checklist had no effect

h.   ☐ because my staff did not follow it, and I did not ask them to

i.   ☐ because my staff did not follow it, despite being asked to

j.   ☐ other _____

Section 4 – Imprest Money / Petty Cash

24.   If your group was slated to receive Imprest Money, did your cost center submit a bill to the A.G. Office or DAO asking for the money to be released?

a.   ☐ Yes

b.   ☐ No

c.   ☐ Don't Know

   If you selected option "*b*" or "*c*" for the question above, please move to Question No. 30

25.   If your cost center submitted a bill to the A.G. Office or DAO asking for imprest, was the bill passed?

a.   ☐ Yes

b.   ☐ No

26.   How many times did you or your staff have to visit the DAO/AG to get the bill passed?

       _____ times

27.   Did you, your staff, or staff or DDOs from another cost center get asked to pay speed money at AG/DAO to get your imprest bill passed?

a.   ☐ Yes

b.   ☐ No

28.   On what date was your imprest bill passed?

       Format: yyyy/mm/dd   _____

29.   On what date did you receive cash from your imprest cheque?

       Format: yyyy/mm/dd   _____

30.   Did you receive the imprest guide instructing you how to use imprest?

a.   ☐ Yes

b.   ☐ No

c. ☐ **Don't Know**

If you selected option "*b*" for the question above, please move to Question No. 32

31. Was it useful?
a. ☐ Yes
b. ☐ No

32. Do you think Imprest Cash could be useful in helping conduct better procurement for procurement valued at less than Rs. 100,000?
a. ☐ Yes
b. ☐ No

33. If your imprest cheque was issued and encashed, did you find it useful in conducting better procurement?
a. ☐ Yes
b. ☐ No

34. If you think Imprest Cash was useful for procurement valued at less than Rs. 100,000, why do you think so? (select all that apply)
a. ☐ We can choose to procure from a larger selection of vendors if we can pay cash upfront
b. ☐ Whether or not we choose the same vendors, they will charge lower prices if they are paid cash up front
c. ☐ When we pay cash up front, there is less need or demand for speed money from A.G/DAO
d. ☐ We would no longer need to borrow from vendors or general order suppliers to fund these procurement
e. ☐ We would no longer need to spend our own money to fund these procurements
f. ☐ We can buy goods quicker
g. ☐We can buy the things we actually need
h. ☐ We can buy goods we did not get any budget for
i. ☐ We can buy more goods because we received more money
j. ☐ Other reasons:_____

35. If you think Imprest Cash was not be useful for procurement valued at less than Rs. 100,000, why do you think so? (select all that apply)
a. ☐ We would still be constrained to buy form the same suppliers because they are NTN/STRN registered
b. ☐ We would still buy from the same vendors because they are reliable, and finding new vendors is time consuming and costly
c. ☐ We would still buy from the same vendors because they have a good relationship at the A.G./DAO and so their bills pass more easily
d. ☐ We would still buy from the same vendors because they are willing to be flexible about their invoices, and a long term relationship allows us to adjust any unexpected or excessive deductions by the AG office /DAO in future bills
e. ☐ Vendors would not charge lower prices regardless of whether they are paid up front or after bills are passed, even though bill passing may be delayed
f. ☐ It would be troublesome to handle such a large amount of cash at the office because of security issues
g. ☐ It would be troublesome to handle such a large amount of cash at the office because office staff may start to borrow from it

h.　　☐ Imprest can lead to audit objections

i.　　☐ When we recoup imprest, we get less money than we paid to vendors due to issue in adjustment of Income Tax & GST or other reasons _____**_____**

j.　　☐ Other reasons:_____

Section 5: Early budget release

36.　　What do you need in order to be able to spend your budget? (select all that apply)

a.　　☐ Cost center should receive a letter from the Administrative Department notifying release of budget

b.　　☐ AG/DAO should receive a letter from the Administrative Department notifying release of budget

c.　　☐ Administrative Department should release budget online

d.　　☐ Other _____

37.　　Think about previous years, before the fiscal year 2015-16. Was your budget ever delayed? (beyond the start of the quarter if released quarterly, beyond the start of the fiscal year if released annually) (select one)

a.　　☐ Yes, always

b.　　☐ Often

c.　　☐ Occasionally

d.　　☐ Seldom

e.　　☐ Never

38.　　Think about the last fiscal year, 2015-16. Was your budget delayed? (beyond the start of the quarter if released quarterly, beyond the start of the fiscal year if released annually) (select one, if released annually, select a or e)

a.　　☐ Yes, always

b.　　☐ Often

c.　　☐ Occasionally

d.　　☐ Seldom

e.　　☐ Never

Section 5.a: Previous fiscal years (2010-2015, before 2015-16)

Please fill in section 5.a (this section) if your budget was ever delayed in the either of the five fiscal years between 2010-2015, before 2015-16

39.　　Did your cost center usually receive budget for the whole year, or semi-annually, or by quarter? (select most common)

a.　　☐ whole year

b.　　☐ quarterly

c.　　☐ semi-annual

40.	Did your cost center usually receive budget on time?
a.	☐ Yes, always
b.	☐ Often
c.	☐ Occasionally
d.	☐ Seldom
e.	☐ Never

41.	What was usually delayed? (select all that apply)
a.	☐ letter from the Administrative Department to cost center notifying release of budget
b.	☐ letter from the Administrative Department to AG/DAO notifying release of budget
c.	☐ Administrative Department's online release of budget
d.	☐ Other _____

Section 5.b: Last fiscal year (2015-16) – **Quarter 1**

Please fill in section 5.b (this section) if your budget is released annually and was delayed during 2015-16, or if your budget is released quarterly and delayed in Q1, 2015-16)

42.	Did your cost center receive budget for the whole year, or semi-annually, or by quarter?
a.	☐ whole year
b.	☐ quarterly
c.	☐ semi-annual

43.	Did your cost center receive budget on time in the quarter (or, if released annually, for the whole year?)
a.	☐ yes
b.	☐ no

44.	When did your cost center receive budget for the quarter (or, if released annually, for the whole year?)
	(if you do not recall the day, leave it empty and fill in only month and year)

	Date (DD/MM/YYYY): ☐☐/☐☐/☐☐☐☐

45.	What was delayed? (select all that apply)
a.	☐ letter from the Administrative Department to cost center notifying release of budget
b.	☐ letter from the Administrative Department to AG/DAO notifying release of budget
c.	☐ Administrative Department's online release of budget
d.	☐ Other _____

Section 5.c: Last fiscal year (2015-16) – **Quarter 2**

46.	Did your cost center receive budget for the whole year, or semi-annually, or by quarter?
a.	☐ whole year
b.	☐ quarterly

c.   ☐ semi-annual

47.   Did your cost center receive budget on time in the quarter (or, if released annually, for the whole year?)

a.   ☐ yes

b.   ☐ no

48.   When did your cost center receive budget for the quarter (or, if released annually, for the whole year?)
        (if you do not recall the day, leave it empty and fill in only month and year)

        Date (DD/MM/YYYY): ☐☐/☐☐/☐☐☐☐

49.   What was delayed? (select all that apply)

a.   ☐ letter from the Administrative Department to cost center notifying release of budget

b.   ☐ letter from the Administrative Department to AG/DAO notifying release of budget

c.   ☐ Administrative Department's online release of budget

d.   ☐ Other _____

Section 5.d: Last fiscal year (2015-16) – **Quarter 3**

50.   Did your cost center receive budget for the whole year, or semi-annually, or by quarter?

a.   ☐ whole year

b.   ☐ quarterly

c.   ☐ semi-annual

51.   Did your cost center receive budget on time in the quarter (or, if released annually, for the whole year?)

a.   ☐ yes

b.   ☐ no

52.   When did your cost center receive budget for the quarter (or, if released annually, for the whole year?)
        (if you do not recall the day, leave it empty and fill in only month and year)

        Date (DD/MM/YYYY): ☐☐/☐☐/☐☐☐☐

53.   What was delayed? (select all that apply)

a.   ☐ letter from the Administrative Department to cost center notifying release of budget

b.   ☐ letter from the Administrative Department to AG/DAO notifying release of budget

c.   ☐ Administrative Department's online release of budget

d.   ☐ Other _____

Section 5.e: Last fiscal year (2015-16) – **Quarter 4**

54.   Did your cost center receive budget for the whole year, or semi-annually, or by quarter?

a.   ☐ whole year
b.   ☐ quarterly
c.   ☐ semi-annual

55.   Did your cost center receive budget on time in the quarter (or, if released annually, for the whole year?)
a.   ☐ yes
b.   ☐ no

56.   When did your cost center receive budget for the quarter (or, if released annually, for the whole year?)
        (if you do not recall the day, leave it empty and fill in only month and year)

        Date (DD/MM/YYYY): ☐☐/☐☐/☐☐☐☐

57.   What was delayed? (select all that apply)
a.   ☐ letter from the Administrative Department to cost center notifying release of budget
b.   ☐ letter from the Administrative Department to AG/DAO notifying release of budget
c.   ☐ Administrative Department's online release of budget
d.   ☐ Other _____

Section 5.f: Better procurement
58.   If you received timely budget release, did it help make procurement easier?
a.   ☐ Yes
b.   ☐ No

59.   If you received timely budget release, did it improve procurement outcomes?
a.   ☐ Yes
b.   ☐ No

60.   If timely budget release helped improve procurement outcomes, which ones improved? (select all that apply)
a.   ☐ Value for money – I was able to buy the same thing for a lower price than I would have if budget was released later
b.   ☐ Initiating procurement – I was able to start the procurement process quicker than I would have if budget was released later
c.   ☐ Speed of procurement – I was able to buy things quicker once the process was started than I would have if budget was released later
d.   ☐ Timing of procurement – I was able to buy things when they were needed, which I could not have if budget was released later
e.   ☐ Quality of procurement – I was able to buy better quality things
f.   ☐ Legal compliance – I was able to ensure all rules were followed and all documentation was complete

61.   For the procurement outcomes you selected as being improved by timely budget release, why did they improve? (select all options that apply)

a.   ☐ I was able to pick different vendors than those I usually pick

b.   ☐ Even if we used the same vendors, we had more options, which made a difference

c.   ☐ I was able to pay vendors on time

d.   ☐ I had time to carefully consider what I wanted to buy

e.   ☐ I did not have to spend time running after budget releases

f.   ☐ I did not have to borrow money to procure

g.   ☐ Other _____

62.   If timely budget release helped improve procurement outcomes, which one improved the most? (select one)

a.   ☐ Value for money – I was able to buy the same thing for a lower per unit cost than I would have if budget was released later

b.   ☐ Initiating procurement – I was able to start the procurement process quicker than I would have if budget was released later

c.   ☐ Speed of procurement – I was able to buy things quicker once the process was started than I would have if budget was released later

d.   ☐ Timing of procurement – I was able to buy things when they were needed, which I could not have if budget was released later

e.   ☐ Effect on non-procurement outcomes – earlier release of budget influenced other outcomes that my cost center strives for

f.   ☐ Quality of procurement – I was able to buy better quality things

g.   ☐ Legal compliance – I was able to ensure all rules were followed and all documentation was complete

Annex D

Section 5 – Dice Game

In this experiment you will roll a die 42 times.

Before each time you roll the die, please choose whether you will report the number on the top of the die, or on the bottom of the die, and remember which side you chose. Do not fill in the sheet yet at this stage. Then, please roll the die. Once the die has stopped rolling, please fill in the sheet by ticking whether you chose the top or the bottom, and putting the corresponding number in the box.

Once this sheet is filled, we'll compare your total score with other DDOs in the hall, top 1/3rd scorers will get LSE mug as prize, next 1/3rd scorer will get LSE pen and last 1/3rd will get nothing.

Roll Number	Side Reported		Roll (from 1-6)	Roll Number	Side Reported		Roll (from 1-6)	Roll Number	Side Reported		Roll (from 1-6)
1	Top	Bottom		16	Top	Bottom		31	Top	Bottom	
2	Top	Bottom		17	Top	Bottom		32	Top	Bottom	
3	Top	Bottom		18	Top	Bottom		33	Top	Bottom	
4	Top	Bottom		19	Top	Bottom		34	Top	Bottom	
5	Top	Bottom		20	Top	Bottom		35	Top	Bottom	
6	Top	Bottom		21	Top	Bottom		36	Top	Bottom	
7	Top	Bottom		22	Top	Bottom		37	Top	Bottom	
8	Top	Bottom		23	Top	Bottom		38	Top	Bottom	
9	Top	Bottom		24	Top	Bottom		39	Top	Bottom	
10	Top	Bottom		25	Top	Bottom		40	Top	Bottom	
11	Top	Bottom		26	Top	Bottom		41	Top	Bottom	
12	Top	Bottom		27	Top	Bottom		42	Top	Bottom	
13	Top	Bottom		28	Top	Bottom					
14	Top	Bottom		29	Top	Bottom					
15	Top	Bottom		30	Top	Bottom					

Please do not fill in this section					
Total (A)		Total (B)		Total (C)	
Grand Total					

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