# Data Science for Justice: Evidence from a Nationwide Randomized Experiment in Kenya

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*Can data science improve the functioning of courts, and unlock the positive effects of institutions on development? In a nationwide experiment in Kenya, we use algorithms to identify the greatest sources of court delay for each court and recommend actions. We randomly assign courts to receive no information, information, or an information and accountability intervention. Information and accountability reduces case duration by 22%. Using continuous household surveys, we find that in regions with treated courts, workers were more likely to have formal contracts and higher wages, especially in contract-intensive industries. These results demonstrate a causal relationship between judicial institutions and economic development.*

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## I. Introduction

Well-functioning legal systems are associated with economic development (Djankov et al., 2003; Ponticelli and Alencar, 2016; Lichand and Soares, 2014; Visaria, 2009; Chemin, 2020; Kondylis and Stein, 2021). Judicial institutions spur development by enforcing contracts, securing property rights, and increasing investment. This paper uses a randomized experiment to assess whether this relationship is causal.

In a nationwide experiment in Kenya, we use the first digitized daily court records in the Kenyan judiciary and develop an algorithm to identify the greatest sources of court delays. In one treatment arm, we provide actionable information – the sources of court delays. In a second treatment arm, the actionable information is provided to both the courts and the public. The control group receives the status quo – no information. We analyze the effects of information and accountability on courts and economic development. Our results indicate that information and accountability improves the functioning of courts and has positive effects on economic development.

Until 2015, there was no systematic digital data collection in Kenyan courts, with case information written on paper and staying in local courts. It was impossible to measure the key reasons for delays, and no feedback was given to judges on their performance. In October 2015, the Kenyan judiciary began tracking detailed data on every case going through courts. By 2019, the data comprised more than 9 million observations on daily case activities.

Our analysis of the Kenyan court system's massive dataset uncovers a critical issue: the high frequency of adjourned cases. 14% of all court hearings end in an adjournment, which postpones the case to the next available date, potentially months away. This is a large number considering the average case has 4 hearings, such that most cases will experience one adjournment. This repetition of adjournments has a severe impact on the court system, contributing to case backlog and causing frustration, anger, and added costs to litigants according to the Kenyan judiciary (PMMSC (2015), p. 49).

To address this challenge, we collaborate with the Kenyan judiciary to launch a new intervention in the form of OnePagers. These documents, sent directly to the judges, provide a clear and concise overview of their court performance, the top 3 reasons for adjournments, and the potential increase in performance if these reasons are addressed. This intervention represents a departure from traditional performance evaluations, which prior to this digitization effort were subjective.

DIME Analytics has verified and approved the reproducibility of the results. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily reflect the views of the Kenyan Judiciary, the World Bank and its affiliated organizations, nor those of the Executive Directors of the World Bank or the governments they represent.

The information provided in each OnePager is tailored to each specific court, taking into account the unique reasons for adjournments in each jurisdiction. The visually appealing format of the OnePagers makes them easy to understand and act upon, leading to a new era of improvement and accountability in the Kenyan court system.

In another treatment arm, by sending One-Pagers not only to judges, but also to all other key court users including representatives of civil society, lawyers, police, prosecutors, prisons, probation officers, and public security agencies, we assess the role of bottom-up accountability. The Court User Committee (CUC), comprised of these diverse court users, meets regularly to address pressing issues and provide solutions. This OnePager_CUC intervention arm represents a departure from traditional top-down monitoring approaches, and holds tremendous potential to drive meaningful change in the court system.

Our findings reveal that the key intervention for the overall sample is OnePager_CUC, which significantly reduces adjournments by a substantial 20 percent. In the High courts, which handle the more complex cases, and the majority of which are economic cases, and thus more prone to adjournments in higher level courts, both interventions have an effect. Delving deeper into the root causes, a comprehensive analysis of 38 different reasons for adjournments unveils a surprising discovery - no impact on adjournments caused by the judge's absence (nor by other factors primarily controlled by the judge), but a notable reduction in adjournments resulting from external factors, such as lawyers and their unprepared parties, witnesses, and police. Our results challenge the conventional wisdom that increased monitoring of judges will necessarily lead to improved performance. Instead, we find that it is the external actors who are not properly motivated to resolve cases quickly. Our results offer valuable insights into the complex interplay between incentives, monitoring, and performance in the legal system.

People's satisfaction with the courts improves after the interventions, as shown in multiple waves of "court user satisfaction surveys", collected nationally before and after the OnePager. Thus, the reduction in adjournments is perceived as beneficial by the population. Not everyone is satisfied with the changes though. When we disaggregate the results by the identity of the respondent, we find a slight discontent by lawyers after the reform, in line with the finding that they get less adjournments. This is only a slight discontent since it does not translate into formal complaints made or accusations of corruption. We find no discontent registered by other actors. Together with the general improvement in satisfaction with courts, we also find no decrease in the quality of proceedings. We analyze the text of judgements and do not find evidence that judgements are less likely to be cited, or shorter in length. There is no quantitative evidence that cases are being

appealed or closed more frequently. Thus, the reduction in adjournments did not come at the expense of quality.

We exploit the granular information on cases and the large sample size provided in the DCRT to verify which types of cases are affected. We find that the reduction in adjournments is particularly strong for cases of breach of contract, employment and labor matters, commercial cases (loans, land matters, rent, bankruptcy) and civil cases in general. The results are more mixed for criminal cases with some categories affected and others not. The fact that civil cases are more affected can be explained by the fact that the effect is greater in High courts where most of the cases are civil in nature.

Since civil and commercial cases suffer less adjournments and people perceive these changes as being beneficial, this leads to downstream economic effects. Intriguingly, an experiment conducted recently documented staggering effects of merely informing individuals in rural Pakistan about a judicial reform aimed at expediting court proceedings(Acemoglu et al., 2020): individuals' investment in formal (court) institutions increased by 15 percent. In our case, the reform objectively leads to faster courts and people perceive these changes as beneficial, so it may shift people's expectations in line with Acemoglu et al. (2020). Since courts are faster for cases of breach of contract and employment related matters, there are more incentives to enter into such agreements since they are enforced more swiftly. Using a nationally representative survey collected continuously before and after the reform, we find more written employment contracts signed. This matters for living standards since jobs with such contracts pay more. Consequently, we find an increase in wage. This effect on wages comes partly from the new contracts, and also from increased firm productivity, especially in contract-intensive industries. For technological reasons, some industries rely more on contracts. Existing literature underscores the profound macroeconomic impacts of quickened courts on companies in these sectors (Nunn, 2007; Boehm and Oberfield, 2020; Amirapu, 2021). Our research enriches this body of knowledge by offering the first randomized experiment on the subject. Employing standard contract intensity measures, we have categorized industries based on their contract reliance. This has revealed a rise in productivity within contract-dependent sectors, corroborating the findings of previous studies in this field.

We contribute to a burgeoning literature on the effect of judicial institutions on economic growth. We show that reducing information frictions and providing accountability to the public can reduce court delays and have downstream economic effects. Other studies of judicial reforms focus on procedure (imposing time limits) (Kondylis and Stein, 2021); presidential appointment of judges (Mehmood, 2022); and infrastructure (setting up special civil tribunals in Lichand and Soares

(2014) or debt recovery tribunals in Lilienfeld-Toal et al. (2012)). Our study focuses on another problem: the recurrence of adjournments, which contributes to the slow resolution of cases. In fact, our findings confirm the viewpoint of many legal scholars (Messick, 2015; Moog, 1997; Blue and Berg, 2008; Botero et al., 2003) arguing that the problem of delays in court is largely a problem of incentives: some parties benefit from court delays, asking for unnecessary and frivolous adjournments to delay cases as much as possible, for example lawyers if they are paid for each court appearance. Our contribution is to provide experimental evidence on this phenomenon. Our results demonstrate that greater transparency and accountability can substantially improve the efficiency and effectiveness of courts, which leads to downstream economic effects.

The rest of the paper is organized as follows. Section II describes the intervention. Section III presents the conceptual framework for the likely effects of the intervention. Section IV presents the experimental design and balance tests. Section V describes the empirical specification, while section VI discusses the results on legal outcomes. Section VII discusses the behavioral mechanisms. Section VIII shows the effects on economic outcomes and section IX concludes.

## II. The Intervention

### *A. Background*

In October 2015, the Kenyan judiciary began collecting a dataset called the Daily Court Return Template (DCRT). The DCRT dataset contains detailed data on every case going through Kenyan courts, with more than 9 million observations at the case-activity level. It includes information on the exact charge leveled against the defendant, the precise outcome of each appearance, the name of the presiding judge(s)[1], the number of plaintiffs/appellants, the number of defendants/accused, whether any of the parties has legal representation, how many accused were remanded in custody, and whether a witness has testified.

The DCRT dataset allows us to shed new light on the sources of delays in courts. It contains data on the sources of cases, what happened in court, and next steps. In particular, hearings can result in an "adjournment", i.e., a postponement of the case to a future time, which are important sources of delay. Adjournments are discouraged,[2] but not explicitly forbidden.[3]

[1]The Kenyan judiciary consists of: Supreme Court, High Court, Employment and Labour Relations Court and Environment and Land Court (the superior courts) and Magistrate Courts (the lower-level courts). The superior courts have judges, and the lower-level courts have magistrates or judicial officers. For the sake of brevity, we use the word "judges" throughout the paper, but technically it should be "judges and judicial officers".

[2]Rule 5.5 of the Guidelines for active case management of Kenya says: "Applications for adjournment on the day of a trial may only be granted in exceptional circumstances and in such cases, reasons for granting the adjournment shall be recorded in writing."

[3]Order 51, rule 6 of the Kenyan Civil Procedure Act states: "The hearing of any application may from time to time be adjourned upon such terms as the court thinks fit."

When adjournments are too frequent, litigants get frustrated, files get lost, memories fade and witnesses disappear, such that both the speed and quality of legal processes may be affected (Messick, 2015). Adjournments also cause delayed punishment, discounting its net present value (or severity), which encourages opportunistic behavior.

Prior to 2015, there was no verifiable data on adjournments, or on their link with court performance. It was impossible to measure them or to give feedback to judges; in other words, there were few incentives for judges to resolve cases faster and no accountability. Cases were frequently adjourned.

Table 1 below shows the descriptive statistics of key variables in the DCRT before 2019, i.e., before our randomized intervention. First, it shows that the probability that any case coming to court ends up in an adjournment is 14 percent. This is a large number considering that the mean number of hearings per case is 4.63.

The DCRT also shows the precise reason for the adjournment (of 38 different types). Some adjournments may be necessary ("death of a party") or even desirable ("parties to negotiate"), but these only represent a tiny fraction of all adjournments (0.01 percent for "death of a party", 0.6 percent for "parties to negotiate").

The other adjournments are more avoidable. Some are caused by the court itself, which we call "internal" adjournments. Examples are "court not sitting" or "judgment not ready". They represent 26 percent of all the adjournments. These adjournments mean that litigants are coming to court but were not warned ahead of time that the court was not sitting, which can be a very frustrating experience.

Other adjournments are caused by other actors, which we call "external" adjournments. We display the main categories in Table 1: "parties not ready" (13% of all adjournments), "parties not present" (13%), "lawyer not ready" (9%), "witness not present" (17%), "police"[4] (1%), and "prosecutor not ready or not present" (9%)[5]. These adjournments may be valid or strategic. Kenya's Criminal and Civil Procedure Rules provide very clear remedies to avoid these adjournments, such as active case management strategies and the use of pre-trial conferences to clarify schedules and avoid adjournments down the line (Chemin and Newman, 2020).

A first observation is that there are more external adjournments than internal ones. Ten percent of all hearings end with an external adjournment while only 2 percent of all hearings end with an internal adjournment. Thus, a large share of adjournments are caused by external actors to the

[4] "Faulty Charge Sheet" or "Police file not availed"

[5] Both adjournments from the police or the prosecutor can only happen for criminal cases. The denominator in the proportion given is defined for all cases, civil and criminal.

Table 1—Descriptive Statistics before 2019

| | Mean | SD | N |
|---|---|---|---|
| Probability that the hearing ends in an adjournment | 0.144 | 0.351 | 5245230 |
| Conditional on being adjourned, reason of adjournment: | | | |
| Death Party | 0.00 | 0.02 | 757419 |
| To Negotiate | 0.00 | 0.07 | 757419 |
| Court | 0.26 | 0.44 | 757419 |
| Parties not ready | 0.13 | 0.34 | 757419 |
| Parties not present | 0.13 | 0.34 | 757419 |
| Advocate | 0.09 | 0.29 | 757419 |
| Witness | 0.17 | 0.38 | 757419 |
| Police | 0.01 | 0.10 | 757419 |
| Prosecutor | 0.09 | 0.28 | 757419 |
| Other | 0.06 | 0.23 | 757419 |
| Probability that the hearing ends in an: | | | |
| Adjournment External | 0.10 | 0.30 | 5426222 |
| Adjournment Internal | 0.02 | 0.14 | 5426222 |
| Probability that the hearing is/has: | | | |
| Resolved | 0.142 | 0.349 | 5426222 |
| Filed | 0.140 | 0.347 | 5426222 |
| Appealed | 0.02 | 0.15 | 5426222 |
| Convicted | 0.05 | 0.23 | 5426222 |
| Case Closed | 0.04 | 0.19 | 5426222 |
| Legal Representation | 0.40 | 0.49 | 5426222 |
| Witness Plaintiff | 0.06 | 0.51 | 5426222 |
| Witness Defendant | 0.02 | 0.23 | 5426222 |
| Court-level Data | | | |
| Clearance Rate | 165.06 | 514.90 | 6791 |
| Clearance Rate (trim 95) | 93.98 | 64.24 | 6351 |
| Case-level Data | | | |
| Time to Disposition | 854.02 | 1703.64 | 609666 |
| Time to Disposition (trim 95) | 487.00 | 798.12 | 570226 |

court, not the court itself.

The data also contains information on whether the case is resolved or filed, on appeals, convictions and case closed (which we will use as dependent variables to measure the effect of the intervention on quality), and on the presence of legal representation or witnesses (which we will use as control variables in the analysis since they proxy for case complexity). Appendix A shows descriptive statistics on the type of cases in court.

The Kenyan judiciary uses an index called "the case clearance rate" (CCR) to measure court performance. It is equal to the number of cases resolved divided by the number of cases filed in the month in the court. It measures the extent to which the court system is able to cope with its caseload. If this index is below 100%, it means there are more cases filed than resolved, hence a backlog is accumulating. A target of 100% has been established by the Kenyan judiciary. The case clearance rate (CCR) is one of the most important indicators of court efficiency, and is used in all evaluation of courts within the Kenyan judiciary.

There are clear outliers when calculating this index, simply because some courts are small and file few cases (the denominator), which makes the clearance rate large. For example, the highest clearance rate in the data is 15100%. We thus trim the data at the 95th percentile (which corresponds to a clearance rate of 375%). The untrimmed mean clearance rate is 165%, but the trimmed mean clearance rate is 94%, and the median clearance rate is 73%. This indicates that a backlog is accumulating.

### *B. The "One-Pager"*

The goal of the intervention is to display key metrics for each court, such as their CCR ("case clearance rate" defined above), the proportion of hearings ending in an adjournment, the top three reasons for these adjournments, as well as the predicted improvement in court performance if the adjournment reason had been addressed. For this purpose, we develop the "One-Pager" (see Figure 1 below for an example).

The first section of the One-Pager shows basic numbers of cases filed, cases resolved, rulings, and adjournments during the month. The goal is to start with a section easy to understand for any judge.

The second section shows the CCR, which is the key index of court performance use by the Kenyan judiciary for promotions and transfers.

The novel part is the third section, which shows the number of monthly adjournments in the court. In particular, the feedback report shows the top three reasons for adjournments for each

FIGURE 1. EXAMPLE OF A ONE-PAGER

REPUBLIC OF KENYA

**Baricho Magistrate Court**
**Court Monthly Feedback Report**
**February 2019**

*"My tenure will be defined by service delivery based on the performance of Court Stations throughout the country"*

Honorable Justice David Maraga, Chief Justice

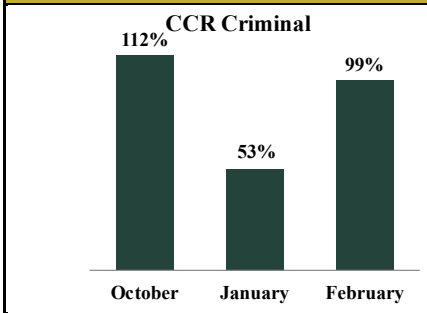
JUDICIARY
REPUBLIC OF KENYA

## CRIMINAL CASES

**Summary of Key Court Events the Month of February**

| | |
|---|---|
| Cases filed | 81 |
| Cases resolved | 80 |
| Rulings and judgments | 21 |
| Adjournments | 76 |

**Case Clearance Rate (CCR) Previous Three Months**




**Top Three Reasons For Adjournments the Month of February**

| Reason | Number | Percentage |
|---|---|---|
| Court not sitting | 31 | 41% |
| Witness not present | 19 | 25% |
| Partie(s) not present | 6 | 8% |

**Recommended Action**

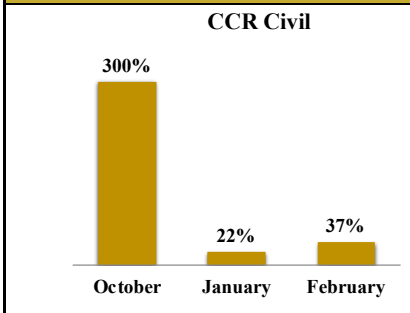
| | | | |
|---|---|---|---|
| Addressing | Court not sitting | increases CCR by | 2% |
| Addressing | Witness not present | increases CCR by | 1% |
| Addressing | Partie(s) not present | increases CCR by | 1% |

## CIVIL CASES

**Summary of Key Court Events the Month of February**

| | |
|---|---|
| Cases filed | 41 |
| Cases resolved | 15 |
| Rulings and judgments | 14 |
| Adjournments | 29 |

**Case Clearance Rate (CCR) Previous Three Months**




**Top Three Reasons For Adjournments the Month of February**

| Reason | Number | Percentage |
|---|---|---|
| Court not sitting | 16 | 55% |
| Partie(s) not ready | 4 | 14% |
| Police file not availed | 3 | 10% |

**Recommended Action**

| | | | |
|---|---|---|---|
| Addressing | Court not sitting | increases CCR by | 27% |
| Addressing | Partie(s) not ready | increases CCR by | 7% |
| Addressing | Police file not availed | increases CCR by | 5% |

**Notes**

**Case Clearance Rate (CCR)-** Case Clearance Rate (Resolved ÷ Filed) × 100 measures the extent to which the court system is able to dispose of cases relative to the cases filed within a specified time period. A clearance rate of 100% implies that the court is coping with its workload. More than 100% clearance rate indicates that the court is reducing its pending cases while less than 100% means that the court is accumulating more cases.

**Resolved Case (RC) -** Any case where a judgement or a final ruling closing the case has been made at the end of period under reference. It also means a finalized case.

**Filed Cases (FC)-** Any case that is registered in court of law for arbitration in a given period.

specific court. (For this particular court, for example, the main reason for adjournments is "court not sitting".)

The fourth section shows the link between adjournments and performance (measured by the CCR). Appendix B provides greater details on the analysis. Our model can predict the likely improvement in CCR if adjournments were addressed. This is the first time a link is made quantitatively between these adjournments and the CCR.

Adhering to the key conditions for success of information experiments identified by Haaland et al. (2022), our experiment leverages visually appealing OnePagers to present new and credible information drawn from the Kenyan judiciary's administrative dataset.

### *C. The Experiment*

We implement two different treatments:

1) OnePager: we send the OnePagers to judges alone in February 2019

2) OnePager_CUC: as above, but also sharing the One-Pager with Court User Committees (CUCs), which includes court actors such as lawyers, prosecutors, the police, as well as representatives from local communities

To increase legitimacy, the OnePagers were sent through the internal mailing system of the Kenyan Judiciary. It came with specific instructions from the Chief Justice to implement the recommendations of the OnePagers. For example for the OnePager_CUC treatment, The Chief Justice writes: "You will therefore receive a one page summary of your court every month which you will table for discussion during your quarterly Court User Committee (CUC) meetings, as a standing agenda item, with a view to identifying and implementing interventions aimed at improving service delivery and addressing the leading causes of adjournments in your court". The full text accompanying the interventions is available in Appendix C.

## III. Conceptual Framework

### *A. Effect of the One-Pager on Court Speed*

The rationale for the first intervention was top-down monitoring, and for the second bottom-up accountability.

Consider a principal-agent model where the principal is the Chief Justice, the agent is the judge, and the problem is lack of effort on the judges' part. In that model, the Chief Justice genuinely

cares about fast courts.[6] Monitoring is imperfect: judges operate in remote courts with no data flowing back to the center or being analyzed prior to the OnePagers. Thus, the model predicts that effort by judges is provided at a suboptimal level. The treatment increases the monitoring of adjournments by displaying them on the One-Pager. They were never reported before. According to this model, the OnePager treatment would serve to reduce adjournments.

The rationale for the second intervention was bottom-up pressure rather than top-down monitoring. In the CUC meetings, there is a new set of principals (civil society) and a new set of agents (external court users such as lawyers, police, prosecutors). Civil society cares about faster courts in general, but external court users may not be properly incentivized to resolve cases faster. For example, lawyers paid by court appearance may wish to delay cases. Civil society representatives are present at the CUC meetings and gain access to previously unreported information about adjournments. They can place pressure on either judges or the external court users depending on the exact sources of delays.

To understand the mechanisms, in the empirical analysis, we will disaggregate adjournments by their exact cause (judges or lawyers, police, prosecutor) to understand the channels through which the intervention is working.

### *B. Effect of Court Speed on Economic Outcomes*

If the One-Pagers affect court speed, this may have in turn downstream economic effects. A recent literature has documented that faster courts may benefit firms, in particular firms engaging in relationship-specific investments (Nunn, 2007; Boehm and Oberfield, 2020; Amirapu, 2021). Suppose a firm contracts with a supplier to produce a customized good (which only has value for the firm, not any other firms). Once the supplier has sunk the investment costs to produce the customized good, the buyer can renegotiate prices down since there are no other buyers for this customized good. The supplier can sue in court.

Slow courts lower the amount recovered in courts. This depresses the incentives to produce the customized good, and potentially its quality. This has implications for the firm (the buyer of the customized good). If the customized good is defective, the firm needs to use some of its labor force to correct these deficiencies. As in Boehm and Oberfield (2020), this introduces a "wedge" in labor, which depends on the defectiveness of the customized input. A more effective judiciary reduces the wedge. The marginal product of labor, and therefore wages, would increase, as shown formally in Appendix D. The literature has documented large macroeconomic effects for this channel (Boehm

[6]The Chief Justice has been on record saying: "by the end of my tenure in December 2020, we shall have no cases in court older than 3 years". Or: "endless adjournments of cases on frivolous grounds are a major cause of case backlog in the country".

and Oberfield, 2020; Amirapu, 2021). Our paper contributes to this literature by looking at the incentives to enter into contracts with a randomized experiment.

There may also be an effect of faster courts on investment more generally since courts protect investors from expropriation (Kondylis and Stein, 2021; Mehmood, 2022; Chemin, 2009*b*,*a*, 2012, see Ramos Maqueda and Chen, 2021 for a review). Another literature has focused on the effect of faster courts on access to credit since courts can enforcement repayment of loans (Jappelli et al., 2005; Visaria, 2009; Lilienfeld-Toal et al., 2012; Ponticelli and Alencar, 2016; Rao, 2022).

Overall, through these channels (contracting behavior, investment, access to credit), there might be a beneficial effect of faster courts on firms and therefore on living standards. We specified these variables in our pre-analysis plan.

## IV. Experimental Design

### *A. Randomization*

The experiment was nationwide. The unit of randomization is a court station, since one court station has one CUC. A court station is a geographic compound that can include a high court and a magistrate court. We randomized at the court station level to minimize the spillover effects between treated and control judges within the same geographic compound. Instead, if a court station is treated, all judges receive the same intervention.

One third of the courts in Kenya were randomly selected to receive the treatment "One-Pager", whereby the judges receive the One-Pager. Another third of the courts receive the treatment "One-Pager + CUC", whereby all judges receive the One-Pager and the one-pagers are also be distributed to all members of the CUC to be discussed in the CUC meeting. The OnePagers were sent in February 2019.

There are 124 court stations in Kenya. To achieve balance, we follow Bruhn and McKenzie (2009) and use a stratification technique. We stratify based on geographical variables, since the effect may be different in different places. In practice, we established a list of 8 regions in Kenya to make sure that there was an approximately equal number of control and treated court stations in each of these 8 regions. Appendix E provides more details on how we determined these 8 regions.

We also stratify based on fast versus slow court stations, since the effects could be different across fast and slow courts. One may expect a large effect of the interventions on slow courts, and maybe less effect on fast courts (since these courts are already performing well). Thus, it will be important to look at heterogenous effects of the one-pager across fast and slow courts. The proper way to do this is to stratify on initial speed such that the sample is balanced across fast and slow courts.

Appendix E provides more details on how we created these indicators of fast or slow courts.

We obtained ethical approval for this project (McGill REB 20-06-027), and filed a pre-analysis plan (AEARCTR-0006228).

### *B. Balance Test and Pre-Trends*

Before the experiment, the treatment groups and control groups are well balanced. In Table 2, we restrict the sample to the period before 2019 and regress adjournments on the two treatment dummies. None of the coefficients in this table are statistically significant. For example, there were 0.5 percentage points more adjournments in the treatment group "One-Pager + CUC". There are no differences in the proportion of internal or external adjournments.

Table 2—Balance Before the Intervention

| | (1) Adjournment | (2) Adjournment External | (3) Adjournment Internal |
|---|---|---|---|
| OnePager | 0.014 | 0.015 | -0.00032 |
| | (0.021) | (0.012) | (0.0040) |
| OnePager CUC | 0.0050 | 0.017 | -0.0017 |
| | (0.018) | (0.013) | (0.0035) |
| Observations | 5240381 | 5421368 | 5421368 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. The sample is restricted to the period before 2019. In Column (1), the dependent variable is a dichotomous variable equal to 1 if a hearing ends in adjournment, 0 otherwise. In Column (2), the dependent variable is a dichotomous variable equal to 1 if a hearing ends in adjournment and the reason given for adjournment was classified as Internal (those under the control of the judge), 0 otherwise. In Column (3), the dependent variable is a dichotomous variable equal to 1 if a hearing ends in adjournment and the reason given for adjournment was classified as External (requested by lawyers or prosecutors), 0 otherwise. The variable "OnePager" takes on a value of 1 if the observation is in in a court which received a One-Pager, 0 otherwise. The variable "OnePager CUC" takes on a value of 1 if the observation is in in a court which received a One-Pager and that OnePager was sent to the CUC, 0 otherwise. The regressions include the stratification dummies (the 8 region dummies and the Slow/Fast dummy) as well as a dummy for whether the court is a magistrate court or a high court.

Table F1 in Appendix F shows that there are similar proportions of resolved cases, filed cases, appeals, convictions, frivolous cases, legal representation, number of witnesses for plaintiff, number of witnesses for defendants across treatment and control groups. The composition of case types is also balanced.

The treatment and control groups are well balanced for basic socio-demographics (gender, age, years on the job, education, household size), as can be seen in Table F2. There is also good balance on the outcomes of interest specified in our pre-analysis plan: investment, business creation, access to credit, consumption, and contracting behavior; as shown in Table F3.

The treatment and control groups are also well balanced for their county GDP levels (Table F4),

or when using the Kenya Integrated Household Budget Survey (KIHBS) 2015-2016 (Table F5).

## V. Empirical Specification

The main outcome specified in our pre-analysis plan was a reduction in adjournments. To evaluate the effect on adjournments, we estimate the following specification:

$$\begin{aligned} Adjournment_{ictk} \;=\; & \beta_0 + \beta_1 OnePager_c \times Feb2019_t + \beta_2 OnePagerCUC_c \times Feb2019_t \\ & + \beta_3 OnePager_c \times Mar2019_t + \beta_4 OnePagerCUC_c \times Mar2019_t \\ & + \beta_5 OnePager_c \times Apr2019_t + \beta_6 OnePagerCUC_c \times Apr2019_t \\ & + \beta_7 OnePager_c \times May2019_t + \beta_8 OnePagerCUC_c \times May2019_t \\ & + \beta_9 OnePager_c \times AfterJune2019_t + \beta_{10} OnePagerCUC_c \times AfterJune2019_t \\ & + \beta_{11} OnePager_c \times Jan2019_t + \beta_{12} OnePagerCUC_c \times Jan2019_t \\ & + \alpha_c + \gamma_t + \beta_4 X_{ictk} + \theta_k + \epsilon_{ictk} \end{aligned}$$

$Adjournment_{ictjk}$ is a dichotomous variable equal to 1 if the outcome of a hearing is adjournment, 0 otherwise; such that the regression is predicting the average probability that a hearing will be adjourned. The subscript $i$ corresponds to each individual court appearance. $c$ refers to court $c$, $t$ refers to the time period (a month-year). The variable $Feb2019_t$ takes on a value of 1 if the observation is in February of 2019, 0 otherwise, similarly for the other months. $OnePager_c$ is a dichotomous variable equal to 1 for courts receiving the One-Pager, 0 otherwise. $OnePagerCUC_c$ is a dichotomous variable equal to 1 for courts receiving the One-Pager that is disseminated to the CUC meeting, 0 otherwise.

The key variable of interest to determine the impact of the One-Pagers is: $OnePager_c \times Feb2019_t$, which estimates the short-run effect (the month of the implementation). $OnePager_c \times Mar2019_t$, $OnePager_c \times Apr2019_t$, $OnePager_c \times May2019_t$ measure the effect in the following months. $OnePager_c \times AfterJune2019_t$ measures the long-run effects.

To check for common time trends, we look at the variable $OnePager_c \times Jan2019_t$. The coefficient $\beta_{11}$ checks for an effect of the One-Pagers in a period before the intervention had started. If we find that the pilot has an impact in January 2019, this will suggest that the treatment and control groups were on divergent time trends before the pilot so the results we obtain from the difference-in-differences regression could be driven by something other than the intervention itself. If, on the other hand, $\beta_{11}$ is not significantly different from zero, we can be more confident that the treatment

and control groups were on the same pre-trends. In a robustness check, we include more leads than just January 2019 to test for common pre-trends in preceding months.

($\alpha_c$) are court fixed effects and ($\gamma_t$) are month-year fixed effects. $X_{ictk}$ is a vector of controls which includes: legal representation of the defendant, accused or plaintiff; whether the defense produced a witness; whether the prosecution produced a witness. Moreover, we include detailed case code fixed effects ($\theta_k$).[7] $\epsilon_{ictjk}$ is a stochastic error term. Standard errors are robust, clustered at the level of courts.

To adjust for multiple hypothesis testing, we use the Sharpened False Discovery Rate (FDR) adjusted q-values (Anderson, 2008). Intuitively, this method adjusts the p-values by dividing the significance level by the number of hypotheses tested in a family of outcomes, taking into account the rank of the variable according to its p-value within the family.

## VI. Results

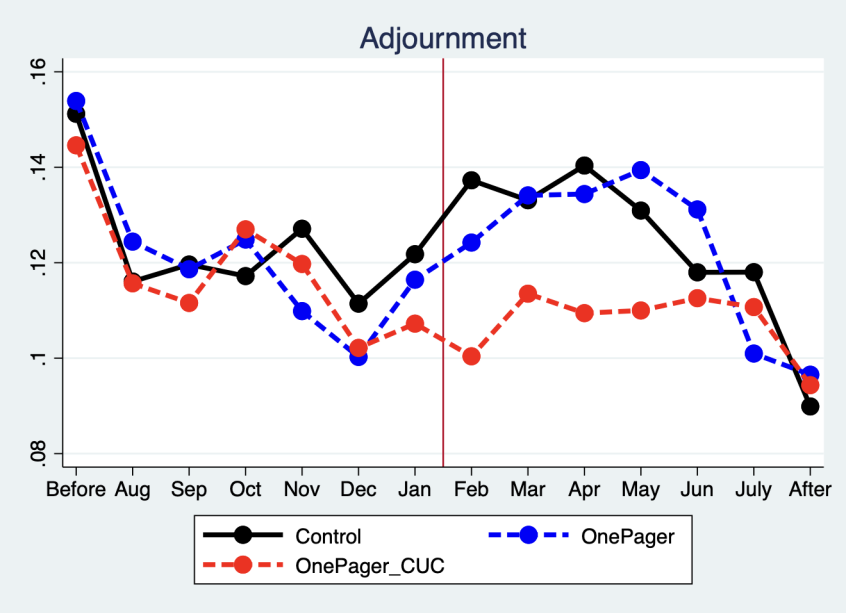
### *A. Effects on Adjournments*

Before turning to regression results, we show the raw data on adjournments in Figure 2. This figure displays the proportion of hearings ending in an adjournment every month. Before the intervention implemented in February 2019, the three groups are quite comparable. The situation changes after February 2019: the treatment group OnePager is now below the control group, even more so for the treatment group OnePager CUC. While the control group is around 14% in that period, the treatment group OnePager CUC is around 11%, indicating a three percentage points difference between the two groups. The effect fades away in June 2019, which is logical since we only sent one wave of OnePagers in February 2019 therefore effects are likely to disappear after some time.

One could argue from Figure 2 that the treatment effect is driven by the control group increasing, not the treatment group decreasing. However, the slight increase in the control group before and after February 2019 is not statistically significant.[8] The only significant effect (detected in the regression) is between the control group and the treatment group OnePager CUC. The (insignificant) increase for the control group may be due to seasonal effects (for example, less cases in December where courts are closed towards the end of the month for the vacation, more cases in February as a result and thus more adjournment then). No matter what the precise reason is for the slight increase, the important result is that there is no such increase, in fact a decrease, in the treatment

[7] Case codes are used for administrative purposes to categorize the 42 different types of cases.
[8] The time fixed effects for these months are not significantly different from zero in the main regression below.

Figure 2. Effects on Adjournment




group OnePager_CUC. In the econometric analysis below, these seasonal effects are captured by the month fixed effects.

Table 3 shows the regression results estimating the impact of the One-Pagers on adjournments. Column (1) shows that the One-Pagers reduced the probability of adjournment by 1.3 percentage points in the month of February 2019 (not significantly so). The effect is greater for the one-pagers sent to the CUC meeting: this intervention reduced the probability of adjournment by 2.8 percentage points, exactly in line with Figure 2 above. The effect is significantly different from zero. This is a large effect considering that the probability of adjournment for the treatment and control groups combined was 14 percent prior to 2019. It thus corresponds to a [2.8/14=] 20 percent reduction in adjournments. The effect persists in March and April (with reductions of 1.5 and 2.4 percentage points, albeit less significantly), but drops after June 2019.

There is no effect in January 2019, a month before the intervention, which is indicative of common pre-trends. When we add more leads for October to December 2018, none of the coefficients are significant.

One issue with these results is that judges may not have changed their behavior at all but simply fudged the data to reflect less adjournments which are now monitored. This is unlikely to be the case for two reasons. First, the data is not entered by judges themselves, but by court clerks following public processes. The Kenyan judiciary places a strong emphasis on data quality, with teams of statistical officers regularly conducting back checks and training local court staff on data

Table 3—Effect on Adjournments

| | (1) | (2) | (3) | (4) Same as on One-Pager | (5) Different as on One-Pager |
|---|---|---|---|---|---|
| OnePager * February 2019 | -0.011 | -0.0096 | -0.0096 | -0.015* | 0.0026 |
| | (0.011) | (0.011) | (0.011) | (0.0085) | (0.0092) |
| OnePager CUC * February 2019 | -0.027** | -0.027** | -0.027** | -0.018** | -0.0066 |
| | (0.014) | (0.014) | (0.014) | (0.0091) | (0.010) |
| OnePager * March 2019 | 0.0041 | 0.0048 | 0.0048 | -0.0046 | 0.0091 |
| | (0.013) | (0.013) | (0.013) | (0.0081) | (0.0098) |
| OnePager CUC * March 2019 | -0.016 | -0.017 | -0.017 | -0.014* | -0.0018 |
| | (0.014) | (0.014) | (0.014) | (0.0078) | (0.010) |
| OnePager * April 2019 | -0.011 | -0.0092 | -0.0092 | -0.010 | 0.00078 |
| | (0.013) | (0.013) | (0.013) | (0.010) | (0.011) |
| OnePager CUC * April 2019 | -0.024 | -0.024 | -0.024 | -0.019* | -0.0058 |
| | (0.015) | (0.015) | (0.015) | (0.010) | (0.011) |
| OnePager * May 2019 | 0.017 | 0.018 | 0.018 | -0.0030 | 0.027** |
| | (0.016) | (0.016) | (0.016) | (0.014) | (0.014) |
| OnePager CUC * May 2019 | -0.0086 | -0.012 | -0.012 | -0.013 | 0.0041 |
| | (0.016) | (0.017) | (0.017) | (0.014) | (0.012) |
| OnePager * After June 2019 | 0.0047 | 0.0055 | 0.0055 | 0.0012 | 0.0044 |
| | (0.016) | (0.016) | (0.016) | (0.0066) | (0.013) |
| OnePager CUC * After June 2019 | -0.0024 | -0.0048 | -0.0048 | -0.0050 | 0.00035 |
| | (0.019) | (0.019) | (0.019) | (0.0077) | (0.014) |
| OnePager * Month Before | -0.0063 | -0.0053 | -0.0053 | -0.0031 | -0.0027 |
| | (0.012) | (0.012) | (0.012) | (0.0083) | (0.0099) |
| OnePager CUC * Month Before | -0.0084 | -0.0082 | -0.0082 | -0.0100 | 0.0046 |
| | (0.013) | (0.013) | (0.013) | (0.0094) | (0.011) |
| Case Code Fixed Effects | | Yes | Yes | | |
| Controls | | | Yes | | |
| Observations | 9047041 | 8850651 | 8850651 | 9047041 | 9047041 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable is a dichotomous variable equal to 1 if a hearing ends in adjournment, 0 otherwise. Column (2) include case code fixed effects. The sample size reduces slightly due to missing observations in case code. Column (3) includes control variables for the presence of legal representation and number of witnesses. In Column (4), the dependent variable is a dichotomous variable equal to 1 if the reason for the adjournment is the same as the top three adjournments displayed on the one-pagers, 0 otherwise. In Column (5), the dependent variable is a dichotomous variable equal to 1 if the reason for the adjournment is different from the top three adjournments displayed on the one-pagers, 0 otherwise. The variable "OnePager*February2019" takes on a value of 1 if the observation is in "February of 2019" and in a court which received a One-Pager, 0 otherwise.

accuracy, further reducing the likelihood of manipulation. Second, if judges cheat with the data, they could have done so in the treatment group OnePager, but no effect is found there for the overall sample. Considering these two factors, we conclude that it is unlikely that judges manipulated the data.

The result remains significant when controlling for case code fixed effects in Column (2), and for the presence of legal representation and number of witnesses in Column (3).

In Column (4), we define a variable equal to 1 if the reason for the adjournment is the same as the top three adjournments displayed on the one-pagers for that particular court, 0 otherwise. The results show that the two interventions reduce those types of adjournment, but the effect is more pronounced and persistent for the OnePager_CUC group. In contrast, in Column (5), we define a variable equal to 1 if the reason for the adjournment is different from the top three adjournments displayed on the one-pagers for that particular court, 0 otherwise. There are no effects there. This confirms the mechanism of the effect: the One-Pagers display the top three reasons for adjournment, and the effect is concentrated among those top 3 reasons that are shown in the One-Pager.

A reduction in adjournments can be converted into time saved. In fact, adjournments generate delays that compound over time. If each hearing faces a certain probability of adjournment, then that adjourned hearing can itself be adjourned at the next stage. Our estimates show that a 20% decrease in adjournments translate into a reduction of 107 days in trial length, or (107/487*100=) 22%.[9]

Table G1 in Appendix G shows that the effect of the two interventions is much stronger in High Courts than in Magistrate Courts. This is logical: cases are more complex in High Courts, with more hearings, thus more likely to be adjourned. In that table, we also find stronger effects in courts that were slower to start with. This is logical since these courts have more room for improvement. Moreover, it means that the effect is not concentrated in courts with fewer issues to start with: slower courts are catching up to faster courts.

Table H1 in Appendix H shows the effect on other outcomes of speed. We find an increase in

[9]Suppose p is the probability of an adjournment. On the first hearing, the probability that the case is closed is $1-p$. With probability $p$, the case is adjourned to the next time available, say after $d$ days. At that time, the case is resolved with probability $1-p$, and adjourned with probability $p$to a next time after another $d$ days, $2d$ days after the start of the case At that time, reached with probability $p^2$, the case closes with probability $1-p$. Overall the total case length is:
$(1-p)*0+p(1-p)d+p^2(1-p)2*d+p^3(1-p)3*d+\ldots$
Basic algebra can simplify this expression. We can factor by $p(1-p)d$:
$p(1-p)d(1+2p+3p^3+...)$
We note that the last term can be rewritten in the following way:
$1+2p+3p^2+4p^3+\ldots=(1+p+p^2+\ldots)+(p+p^2+p^3+\ldots)+(p^2+p^3+p^4+\ldots)+\ldots=(1+p+p^2+\ldots)*(1+p+p^2+\ldots)$=(sum of the terms of a geometric series of reason p)$^2$ $=(1/(1-p))^2=(1-p)^{-2}$
Therefore the total case length is: $p/(1-p)*d$
The new total case length under a lower $p'$ would be: $p'/(1-p')*d=p'/(1-p')/[p/(1-p)]$*total case length
Plugging in $p=0.14$, $p'=0.11$, total case length=487 (trimmed at 95%), we get the new total case length of 370 days.
This corresponds to a reduction of 107 days in trial length, or (107/487*100=) 22%.

cases resolved and no effect on cases filed, it implies a positive effect on the CCR. This result is policy-relevant because the CCR is one of the most important indicators of court efficiency, and is used in all evaluation of courts within the Kenyan judiciary for promotion and transfers.

### *B. Internal vs External Adjournments*

The results above show that the intervention OnePager_CUC is successful at reducing adjournments. To understand the mechanisms through which the intervention works, Table 4 disaggregates adjournments by their main cause, internal or external. Column (1) shows a reduction in external adjournments. In fact, the effect is sustained in the three months after the intervention, which is consistent with the timing of the intervention: the court user committee meetings are organized quarterly, and therefore the effect should be felt after the meeting is organized, which can happen in the three months following the intervention.

The effect remains significant when using the FDR correction for multiple hypothesis testing (p-value=0.03). Intuitively, for this family of 2 outcomes, the best ranked p-value is .01 in Column (1), below 10 percent/2 outcomes*1 (first-rank)=0.05, hence still significant at 10 percent.[10]

Column (2) shows no effect on internal adjournments. This indicates that the effect is not due to judges reducing their own adjournments, but the adjournments of external actors.

To make further progress, we disaggregate external adjournments by their specific reason. In column (1) of Table 5, the dependent variable is a dichotomous variable equal to 1 if the adjournment is because the parties were not ready, 0 otherwise. We find a reduction in those types of adjournments after the OnePager_CUC. Judges grant less adjournments when the parties are not ready, which is in direct compliance with the Kenyan procedure code. If reasonable time has been given for parties to prepare, there should be no reason to adjourn cases and the case should proceed.[11] Reasonable time must have been given at the pre-trial conference stage, where the schedule of events is planned. It is also the responsibility of the lawyer to make sure the parties are ready the day of appearance in court.

We see no effect on parties not present in column (2). Thus, the judge continues to grant such adjournments with or without the OnePagers, despite the procedure code stating that the judge could dismiss the case in case of plaintiff's absence, or proceed "ex-parte" in the defendant's

[10]Note that we do not adjust for multiple hypothesis testing for the outcome adjournment above since it was a variable specified on its own in our pre-analysis plan, as the primary variable of interest in this project. Thus, it is not part of a family. In contrast, external and internal adjournments can be understood as being part of a family.

[11]Kenya Civil Procedure Rules, Order 17, rule 4: Where any party to a suit to whom time has been granted fails to produce his evidence, or to cause the attendance of his witnesses, or to perform any other act necessary to the further progress of the suit, for which time has been allowed, the court may, notwithstanding such default, proceed to decide the suit forthwith.

Table 4—Effect on Internal versus External Adjournments

| | (1) External Adjournment | (2) Internal Adjournment |
|---|---|---|
| OnePager * February 2019 | -0.017 | 0.0000067 |
| | (0.011) | (0.0043) |
| OnePager CUC * February 2019 | -0.030** | -0.0033 |
| | (0.012) | (0.0042) |
| OnePager * March 2019 | 0.0027 | -0.00024 |
| | (0.011) | (0.0041) |
| OnePager CUC * March 2019 | -0.021* | 0.0015 |
| | (0.011) | (0.0040) |
| OnePager * April 2019 | -0.0044 | -0.0076 |
| | (0.011) | (0.0063) |
| OnePager CUC * April 2019 | -0.022* | -0.0072 |
| | (0.012) | (0.0062) |
| OnePager * May 2019 | 0.016 | -0.0022 |
| | (0.015) | (0.0053) |
| OnePager CUC * May 2019 | -0.012 | -0.0027 |
| | (0.015) | (0.0049) |
| OnePager * After June 2019 | -0.0013 | 0.00011 |
| | (0.012) | (0.0033) |
| OnePager CUC * After June 2019 | -0.014 | 0.0043 |
| | (0.014) | (0.0039) |
| OnePager * Month Before | -0.0039 | -0.0069 |
| | (0.0092) | (0.0052) |
| OnePager CUC * Month Before | -0.011 | -0.0081 |
| | (0.011) | (0.0053) |
| Observations | 9047041 | 9047041 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable is a dichotomous variable equal to 1 if a hearing ends in adjournment and the reason given for adjournment was classified as Internal (those under the control of the judge), 0 otherwise. In Column (2), the dependent variable is a dichotomous variable equal to 1 if a hearing ends in adjournment and the reason given for adjournment was classified as External (requested by lawyers or prosecutors), 0 otherwise.

Table 5—Effect on External Adjournments

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | Parties | Parties | Lawyer | | Witness | Police | Prosecutor |
| | not ready | not present | All courts | High Court | | | |
| OnePager * February 2019 | 0.0032 | -0.0010 | -0.0028 | -0.0067 | -0.0075* | -0.0013 | 0.00052 |
| | (0.0031) | (0.0032) | (0.0022) | (0.0059) | (0.0041) | (0.0016) | (0.0026) |
| OnePager CUC * February 2019 | -0.0057* | -0.0028 | -0.0012 | -0.0068* | -0.0086** | -0.00098 | -0.00047 |
| | (0.0029) | (0.0035) | (0.0027) | (0.0035) | (0.0037) | (0.0015) | (0.0028) |
| OnePager * March 2019 | 0.0022 | 0.0043 | -0.00032 | 0.0018 | -0.00040 | -0.0022* | -0.00020 |
| | (0.0031) | (0.0028) | (0.0021) | (0.0058) | (0.0040) | (0.0012) | (0.0032) |
| OnePager CUC * March 2019 | -0.0083*** | -0.00095 | -0.00055 | -0.0055* | -0.0055* | -0.00085 | -0.00051 |
| | (0.0030) | (0.0029) | (0.0033) | (0.0030) | (0.0030) | (0.0014) | (0.0026) |
| OnePager * April 2019 | -0.0032 | 0.0012 | 0.0016 | -0.0023 | -0.0053 | 0.00029 | -0.000066 |
| | (0.0029) | (0.0040) | (0.0023) | (0.0049) | (0.0042) | (0.0018) | (0.0032) |
| OnePager CUC * April 2019 | -0.0085** | -0.0039 | 0.00053 | -0.0067** | -0.0060 | -0.0017* | -0.0020 |
| | (0.0037) | (0.0042) | (0.0028) | (0.0030) | (0.0038) | (0.0010) | (0.0031) |
| OnePager * May 2019 | 0.0029 | 0.0018 | 0.0026 | 0.0091 | 0.0025 | 0.0018 | 0.0027 |
| | (0.0032) | (0.0059) | (0.0029) | (0.0077) | (0.0048) | (0.0019) | (0.0033) |
| OnePager CUC * May 2019 | -0.0057 | -0.0068 | 0.0014 | -0.0019 | 0.00068 | 0.00084 | -0.0026 |
| | (0.0041) | (0.0059) | (0.0032) | (0.0035) | (0.0042) | (0.0012) | (0.0031) |
| OnePager * After June 2019 | -0.0016 | 0.0050 | -0.0019 | -0.0065 | -0.0031 | -0.0015 | 0.00037 |
| | (0.0021) | (0.0045) | (0.0016) | (0.0056) | (0.0034) | (0.0013) | (0.0020) |
| OnePager CUC * After June 2019 | -0.0077** | 0.0011 | -0.0036 | -0.0042 | -0.0039 | -0.0013 | -0.0019 |
| | (0.0036) | (0.0048) | (0.0022) | (0.0030) | (0.0037) | (0.0014) | (0.0030) |
| OnePager * Month Before | -0.00071 | -0.00014 | -0.0011 | 0.0044 | 0.00066 | -0.0025* | 0.0025 |
| | (0.0024) | (0.0028) | (0.0023) | (0.0075) | (0.0041) | (0.0015) | (0.0025) |
| OnePager CUC * Month Before | -0.0056 | 0.00025 | -0.0014 | 0.0038 | -0.00055 | -0.0014 | -0.00035 |
| | (0.0040) | (0.0031) | (0.0023) | (0.0046) | (0.0035) | (0.0015) | (0.0025) |
| Observations | 9047041 | 9047041 | 9047041 | 1321777 | 9047041 | 9047041 | 9047041 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable is a dichotomous variable equal to 1 if a hearing ends in adjournment due to the parties being not ready, 0 otherwise. The next columns are defined similarly, with adjournment due to parties not present in Column (2), lawyers in Column (3) and (4) where the sample is restricted to High Courts, witnesses in Column (5), police in Column (6) and prosecutor in Column (7).

absence.[12]

We also see no effect on adjournments related to lawyers; however, this may be due to the fact that not all cases have a lawyer present. Many small cases at the level of magistrate courts (the lower-level courts) have no legal representation. When we restrict the sample to High Courts (where most cases have a lawyer) in Column (4), we see a decrease in that type of adjournments. Thus, lawyers get less adjournments on their cases. This is in compliance with new directives given by the Kenyan judiciary.[13] The strong effect on adjournments due to lawyers observed in April 2019 is still significant after a multiple hypothesis correction for this family of outcomes (p-value=0.096).

Adjournments due to witness also decrease in Column (5), which is once again in compliance with the procedure codes which outlines very clear procedures for witnesses who disobey summons, through the use of "warrants" or "commissions".[14]

Adjournments due to police decrease slightly in Column (6), which can be explained by the fact that police are not major contributors to adjournments to start with (only 1% of total adjournments are from the police). There is no effect for adjournments by prosecutors in Column (7).

Overall, the conclusion from these tables is that parties not ready, lawyers, witnesses are the key categories of adjournments affected by the treatment.

### *C. Effects on Court User Satisfaction*

The results above indicate that the OnePager and to a greater extent the OnePager_CUC interventions reduce adjournments. This may have a direct impact on court user satisfaction.

To make progress on this question, we use "court user surveys" that collects questions on experience of all court users within the court system. For example, it contains the question in Column

[12] Civil Procedure Rules, Order 12, rule 1: If on the day fixed for hearing, after the suit has been called on for hearing outside the court, neither party attends, the court may dismiss the suit. When only plaintiff attends, Order12, rule: may proceed ex-parte

[13] "Frequent adjournment of cases: This may be as a result of unpreparedness of advocates or prosecutors leading to unnecessary delay. Judges and judicial officers will be required to be strict in considering applications for adjournments. Additional court adjournment fees ought to be levied upon parties who seek unnecessary adjournments to discourage the habit." PMMSC report p. 38

[14] Criminal Procedure Code section 145: Warrant for witness who disobeys summons If, without sufficient excuse, a witness does not appear in obedience to the summons, the court, on proof of the proper service of the summons a reasonable time before, may issue a warrant to bring him before the court at the time and place as shall be therein specified.

Criminal Procedure Code section 154: Issue of commission for examination of witness Whenever, in the course of a proceeding under this Code, the High Court or a magistrate empowered to hold a subordinate court of the first class is satisfied that the examination of a witness is necessary for the ends of justice, and that the attendance of the witness cannot be procured without an amount of delay, expense or inconvenience which, under the circumstances of the case, would be unreasonable, the court or magistrate may issue a commission to any magistrate within the local limits of whose jurisdiction the witness resides, to take the evidence of the witness.

Civil Procedure Rules, Order 16, rule 10(3): Procedure where witness fails to comply with summons. In lieu of or at the time of issuing such proclamation, or at any time afterwards, the court may, in its discretion, issue a warrant, either with or without bail, for the arrest of such person, and may make an order for the attachment of his property to such amount as it thinks fit, not exceeding the amount of the costs of attachment and of any fine which may be imposed under rule 12.

Civil Procedure Rules, Order 28, rule 2: A commission for the examination of a person who resides within the local limits of the jurisdiction of the court issuing the same may be issued to any person whom the court thinks fit.

(1) of Table I1: "The Judge listened and led the proceedings well", measured on a 1 to 4 scale (Strongly Disagree, Disagree, Agree, Strongly Agree). These surveys were collected in 2015, 2017, and 2019. We thus regress this variable on all possible interactions of the treatments and the years, 2017 being the omitted category. For example, the variable called "OnePager*2019" is a dichotomous variable which takes on a value of 1 if the survey was conducted after 2019 and in a court which received the One-Pagers, 0 otherwise. It measures the impact of the OnePager intervention in 2019, after the treatment. The other variables are defined similarly. The 2015 wave provides a test of the pre-trends.

Column (1) shows no negative effect of the One-Pagers on this particular outcome. Thus, the reduction in adjournments does not come with a perception that judges are not listening well or not leading the proceedings well, for example by not granting adjournments when they should. In Column (2), the statement is "The Judge was neutral in his/her decision". The reduction in adjournments, and thus greater focus on speed, does not come at the detriment of perceptions of neutrality of the judge.

Table 6—Effect on Court User Satisfaction

| | (1) Judge led proceedings well | (2) Judge neutral | (3) Suggestion Speed | (4) Suggestion Quality |
|---|---|---|---|---|
| OnePager * 2019 | 0.00 | 0.04 | -0.06* | -0.06*** |
| | (0.07) | (0.07) | (0.03) | (0.02) |
| OnePager_CUC * 2019 | -0.04 | -0.09 | -0.04 | -0.05*** |
| | (0.06) | (0.07) | (0.04) | (0.02) |
| OnePager * 2015 | 0.33 | 0.29 | -0.05 | 0.01 |
| | (0.32) | (0.27) | (0.03) | (0.04) |
| OnePager_CUC * 2015 | 0.31 | 0.26 | -0.00 | 0.02 |
| | (0.30) | (0.26) | (0.03) | (0.04) |
| Observations | 13,847 | 12,612 | 15,199 | 15,199 |
| R-squared | 0.903 | 0.875 | 0.227 | 0.176 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable "Judge Led Hearing Well" is measured on the same 1 to 4 scale. In Column (2) the dependent variable "Judge Neutral" is measured on a 1 to 4 scale: Strongly Disagree, Disagree, Agree, Strongly Agree. In Column (3) the dependent variable "Suggestion Speed" is a dichotomous variable equal to 1 if the respondent made a suggestion associated with speed, 0 otherwise. In Column (4), the dependent variable "Suggestion Quality" is a dichotomous variable equal to 1 if the respondent made a suggestion to improve quality, 0 otherwise. The variable "OnePager*2019" is a dichotomous variable which takes on a value of 1 if the survey was conducted after 2019 and in a court which received the One-Pagers, 0 otherwise.

We run the same specification on all the variables in this questionnaire and find no effects on any

other variables which relate to the quality of the court infrastructure, the court cells, the customer care desk, the court service delivery charter, or the court registry. These null results are expected since the One-Pagers did not change any of those factors.

We then look at the open-ended text question: "What suggestions do you have for improving court facilities and services?". We read all the answers and establish a list of keywords associated with speed.[15] We define a dichotomous variable equal to 1 if the individual made a suggestion containing one of these keywords associated with speed, 0 otherwise.

Column (3) shows that these suggestions on speed decrease with the One-Pager and the One-pager sent to CUCS (albeit not significantly so). We interpret a decrease in suggestions about speed as evidence that people are more satisfied with the speed of courts.

In column (4), the variable is "Suggestion Quality". We search for keywords associated quality.[16] The hypothesis is that if the courts are getting worse, suggestions on how to improve quality should increase, however they decrease as shown in Column (4).

Not everyone is satisfied with the reduction in adjournments. Recall that there are less adjournments to external parties, such as lawyers, police, prosecutors. This may have a negative effect on their satisfaction with court proceedings. We can test this with these court user surveys since they contain information on the identity of the respondent, whether they are lawyers, police, prosecutors, or from the general population. In Appendix I, we disaggregate the results by the identity of the respondent. In line with the reductions of adjournments observed for lawyers , we find a slight discontent by lawyers in terms of how they perceive the judge to be listening well and leading well the proceedings. This confirms that lawyers are affected by the change. Reassuringly, this opinion is not shared by the police / prosecutors, or civil society. Moreover, this is only a slight discontent on the part of lawyers. As shown in Appendix I, it does not significantly translate into any formal complaints made or into increased perception of corruption of judges.

The key takeaway from this section is that court user satisfaction improves with the interventions.Effects on Quality of Decisions

Court users are more satisfied with the courts. We further verify that the reduction in adjournments did not come at the expense of quality by analyzing the judgements delivered by judges in

[15]The full list of keywords is: time, speed, efficient, fast, track, postpon (this captures any words starting with postpon), shorter, early, long, typed (because this was in a sentence associated with speed), prompt, delay, expedite, slow, immediately, quick, duration, timing, adjournment, unnecessary, settlement, more, work, adequate, notice, backlog, dates, case, management, late, earlier, start, expeditious, punctua, absenteeism, dragging, efficiency, performance, adjou, short, overwhelmed, puntual (with this particular typo), congestion, drag, expeditions, expenditious, hasten, have, afternoon, sessions, scheduling.

[16]The full list of keywords is: expertise, quality, file lost, file missing, communication, administration, neutral, skill, assist, competent, service, delivery, charter, friendly, inform, collaboration, cooperation, witness refund, training, fair, fact, properly investigated, justice, transparent, train, motivate, ethic, accuracy, rude, polite, knowledgeable, accurate, understanding, courtesy, arrogant, filing, audible, bias, courteous, transparency, honesty, witness, bribe, corrupt, integrity

Table 7. We assemble a database of the written decisions on the Judiciary of Kenya's publicly available search engine for higher courts (http://kenyalaw.org/caselaw/). This dataset contains roughly 160,000 cases from 1976 to 2020 from the higher courts. We build this dataset by scraping both the metadata associated with each case and the full text of the decision. This allows us to explore if the "One-Pager" had an effect not only on the efficiency of judicial decisions, but also on the quality of written decisions, particularly in higher courts. In contrast to the DCRT, in this dataset we can extract proxies for the quality of judicial decisions, such as the length of the judgement, the number of laws or cases cited in a decision, and the number of times a judgement in our dataset has been cited by the other judgements present in our dataset.

We find no significant negative effects of the One-Pagers on the length of the judgements in Column (1), the number of other cases cited in the text in Column (2), the number of laws cited in the text in Column (3), and the number of citations in Column (4). Overall, these results are consistent with no detrimental effects of the One-Pagers on the quality of legal processes.

In Appendix J, we confirm these findings in the DCRT data by looking at appeals, convictions or case closed. We find no effect of the OnePager_CUC intervention on any of these measures.

Table 7—Effects on Quality of Judgments

| | (1) Judgement Length | (2) Cases in text | (3) Laws in text | (4) Number citations |
|---|---|---|---|---|
| OnePager * February 2019 | -2.75 | -0.87 | 0.23 | -0.01 |
| | (160.75) | (0.66) | (0.55) | (0.09) |
| OnePager CUC * February 2019 | -38.67 | -0.07 | 0.06 | -0.10 |
| | (179.62) | (0.82) | (0.54) | (0.10) |
| OnePager * March 2019 | 194.00 | 0.09 | 0.32 | 0.05 |
| | (142.12) | (0.38) | (0.50) | (0.05) |
| OnePager CUC * March 2019 | 107.30 | 0.54 | 0.67 | 0.22 |
| | (179.59) | (0.52) | (0.60) | (0.25) |
| OnePager * April 2019 | 186.91 | 0.73 | 0.56 | 0.13* |
| | (193.18) | (0.68) | (0.73) | (0.07) |
| OnePager CUC * April 2019 | -29.20 | 0.89 | 0.49 | -0.07 |
| | (229.49) | (0.60) | (0.82) | (0.09) |
| OnePager * May 2019 | -4.81 | -0.76 | 0.51 | 0.08 |
| | (221.05) | (0.67) | (0.69) | (0.07) |
| OnePager CUC * May 2019 | -92.43 | 0.17 | 0.86 | -0.11 |
| | (236.63) | (0.78) | (0.80) | (0.09) |
| OnePager * After June 2019 | 143.04 | -0.04 | 0.36 | 0.08 |
| | (151.46) | (0.75) | (0.69) | (0.07) |
| OnePager CUC * After June 2019 | 70.80 | 0.82 | 0.07 | -0.05 |
| | (194.39) | (0.87) | (0.66) | (0.09) |
| OnePager * Month Before | -4.36 | 0.24 | -0.26 | 0.08 |
| | (172.62) | (0.45) | (0.72) | (0.07) |
| OnePager CUC * Month Before | 206.14 | 1.45** | 0.35 | 0.14 |
| | (194.22) | (0.61) | (0.68) | (0.14) |
| Observations | 137,376 | 137,376 | 137,376 | 137,231 |
| R-squared | 0.111 | 0.141 | 0.126 | 0.034 |
| Mean Dep Var | 2023 | 3.273 | 5.128 | 1.350 |
| (SD) | 2643 | 6.558 | 13.51 | 12.82 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable contains the length of the judgements from the Kenya law dataset. In Column (2) the dependent variable contains the number of other cases cited in the text of the judgement. In Column (3) the dependent variable has the number of laws cited in the text of the judgement. In Column (4) the dependent variable contains the number of times the judgement has been cited.

## VII. Behavioral Mechanisms

We found that the OnePager intervention, and even more so the OnePager_CUC intervention, reduce adjournments caused by external parties such as lawyers, witnesses, and police. These findings can be partly explained by a standard principal-agent model, which assumes that the judges' lack of effort is the root cause of the problem, with the Chief Justice as the principal and the judge as the agent. Despite the Chief Justice's commitment to reducing case backlogs and eliminating adjournments for frivolous reasons, the absence of proper monitoring leads to suboptimal effort from judges, in this conceptual framework. The OnePager treatment was designed to enhance monitoring through the display of adjournments. Judges respond to this monitoring by reducing adjournments, especially those of external actors.

This is not the entire story though, since the OnePager_CUC intervention has even greater effects. This intervention is based on bottom-up pressure from civil society representatives, who are present at the CUC meetings and have access to previously unreported information about adjournments. Civil society is motivated to have their cases resolved quickly. These results align with a principal-agent model where the clients (and the judge) are the principal and the lawyers are the agents. Clients want their cases resolved quickly, while lawyers are paid by clients and have different incentives. For example, lawyers may delay cases since they are paid for each court appearance (Messick, 2015; Moog, 1997; Blue and Berg, 2008). Like the information asymmetry between the Chief Justice and a judge regarding a judge's effort, there is also an information asymmetry between the parties and lawyers, and the lawyers' effort is difficult to observe. The parties do not know whether a specific adjournment requested is valid or unnecessary.

The OnePager_CUCs reveal for the first time the statistics on adjournments, and the presence of civil society representatives at the CUC meetings can lead to sanctions against lawyers by judges. Civil society representatives may ask judges to take sanctions, following the Codes of Procedures and recommendations by the Kenyan judiciary. They can also threaten external actors with the tools provided by the Code of Procedure: giving reasonable time in pre-trial conferences, proceeding with the case when the parties end up being not ready (CPR 17.4), dismissing the case or proceeding ex-parte when the parties are not present (CPR 12.1), issuing warrant or commission on witnesses disobeying summons (CPC 145 and 154, CPR 16.10.3 and 28.2) or with fees levied on them (PMMSC report p. 38). The reduction in external adjournments is consistent with the OnePager_CUCs serving to increase monitoring and reduce low effort by lawyers to resolve cases fast.

The OnePager_CUCs are likely key to addressing the moral hazard problem in the principal-

agent model where traditional remedies such as repeated interactions and reputation are limited. In a finite interaction setting, the lawyer is likely to provide no effort in the last interaction, and by backward induction, in all interactions, undermining repeated interactions as a solution. Similarly, a reputation mechanism is unlikely to work since clients cannot select lawyers based on reputation of frivolous adjournments, and judges are transferred frequently, reducing the possibility of repeated interactions. OnePager_CUCs offer a solution by increasing monitoring through access to administrative data.

The OnePagers also offer a new solution to the challenge of motivating bureaucrats (Finan et al., 2017). The literature suggests that providing incentives to bureaucrats may lead to increased corruption, but in this case, there is no evidence of increased corruption among judges (See Table I2 in Appendix I). The Chief Justice and citizens are aligned in their desire for faster courts, and the OnePager_CUCs provide nonfinancial incentives linked to tangible rewards (promotions and transfers) through the case clearance rates.

In conclusion, the results suggest that involving external actors, not just judges, adds strength to the OnePager intervention for improving court speed. The OnePagers offer a unique solution to the moral hazard problem, as other standard remedies such as repeated interactions and reputation are not feasible in this context. They also provide valuable insights into the complicated question of motivating bureaucrats, and our study finds no evidence of overzealous or inaccurate enforcement.

## VIII. Effects on Economic Outcomes

### *A. Effects by type of case*

Before turning to economic outcomes, we exploit the granular information provided in the DCRT to verify which cases in particular are affected. We first focus on cases of breach of contract.

In Column (1) of Table 8, the sample is restricted to such cases and the dependent variable is adjournment. The sample size is much smaller since we restrict the sample to such cases, but still very large (102,638 observations) owing to the very large size of the original dataset. We see less adjournments for cases of breach of contract. In fact, the effect is much larger than for the entire sample of cases. This may be because these cases are different, more complex, with the presence of more lawyers, such that the interventions work even better.

Column (2) shows an effect for employment and labor matters as well. These results will help guide our analysis of economic effects, since we find an effect on contract and employment cases. Column (3) shows all other types of commercial cases (loans, land matters, rent, bankruptcy), with still an effect there.

Table 8—Effect on Adjournments by Type of Case

| Sample: | (1) Breach of Contract | (2) Employment | (3) Commercial | (4) Succession | (5) Family | (6) Other |
|---|---|---|---|---|---|---|
| OnePager * February 2019 | -0.070*** | -0.20*** | -0.00087 | -0.043** | -0.040** | 0.0016 |
| | (0.023) | (0.071) | (0.017) | (0.017) | (0.020) | (0.016) |
| OnePager CUC * February 2019 | -0.071*** | -0.19*** | -0.037** | -0.034** | -0.044** | 0.0045 |
| | (0.027) | (0.059) | (0.015) | (0.016) | (0.019) | (0.019) |
| OnePager * March 2019 | -0.024 | -0.085 | -0.0025 | -0.0071 | -0.056* | 0.0019 |
| | (0.035) | (0.052) | (0.017) | (0.023) | (0.030) | (0.015) |
| OnePager CUC * March 2019 | -0.019 | -0.11*** | -0.023 | -0.028 | -0.051* | 0.020 |
| | (0.029) | (0.041) | (0.017) | (0.018) | (0.030) | (0.020) |
| OnePager * April 2019 | -0.044 | 0.015 | -0.022 | -0.041*** | -0.029 | -0.020 |
| | (0.038) | (0.066) | (0.019) | (0.015) | (0.025) | (0.020) |
| OnePager CUC * April 2019 | -0.038 | 0.046 | -0.018 | -0.031** | -0.030 | -0.0054 |
| | (0.032) | (0.059) | (0.018) | (0.014) | (0.024) | (0.017) |
| OnePager * May 2019 | -0.00058 | -0.11 | 0.0075 | -0.0012 | -0.013 | 0.029 |
| | (0.040) | (0.077) | (0.015) | (0.016) | (0.024) | (0.021) |
| OnePager CUC * May 2019 | 0.027 | -0.11* | -0.029* | -0.018 | -0.073** | 0.0036 |
| | (0.023) | (0.063) | (0.015) | (0.014) | (0.034) | (0.020) |
| OnePager * After June 2019 | 0.059* | -0.051 | 0.020 | 0.0023 | 0.011 | 0.0075 |
| | (0.035) | (0.052) | (0.013) | (0.016) | (0.019) | (0.018) |
| OnePager CUC * After June 2019 | 0.026 | -0.0055 | 0.0089 | -0.0010 | 0.016 | 0.016 |
| | (0.030) | (0.037) | (0.011) | (0.015) | (0.018) | (0.019) |
| OnePager * Month Before | -0.055 | -0.067 | -0.012 | -0.052** | -0.018 | 0.00014 |
| | (0.037) | (0.058) | (0.019) | (0.023) | (0.015) | (0.019) |
| OnePager CUC * Month Before | -0.032 | -0.066 | -0.043** | -0.033 | 0.028 | 0.039* |
| | (0.045) | (0.050) | (0.018) | (0.022) | (0.025) | (0.022) |
| Observations | 102638 | 33374 | 389607 | 502744 | 325610 | 561310 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In all columns, the dependent variable is a dichotomous variable equal to 1 if a hearing ends in adjournment, 0 otherwise. The sample is restricted to cases of breach of contract in Column (1), employment and labor matters in Column (2), all other commercial cases in Column (3), succession in Column (4), family in Column (5), all other civil cases in Column (6).

Other civil cases are affected: succession cases in Column (4) and family related cases in Column (5), while the residual category of other civil cases in Column (6) is left unaffected.

Table K in Appendix K1 shows the effect on adjournments for criminal cases. The results are more mixed with some cases affected (state regulations, drugs, political) and others not (violence cases, theft, disturbance, sexual, fraud, personal injury cases). The fact that we find greater and more consistent effects on civil cases may be explained by the fact that we find a greater effect of the intervention in High courts, and this is where most civil cases are.[17]

### *B. Economic Effects*

The results above help guide the economic analysis. We find an effect on civil cases, especially breaches of contract and employment related matters. Coupled with the finding that court users perceive these improvements as beneficial, as shown with the "court user surveys", this may have a direct effect on the incentives to enter into contracts.

In Table 9 below, we thus look at the prevalence of contracts, in particular employment contracts.To do so, we use the Kenya Continuous Household Survey Programme (KCHSP). As its name indicates, the data was collected continuously throughout 2019 by the Kenyan National Bureau of Statistics (KNBS), which allows us to look at the effects of the intervention right before and after the treatment. This data is a representative sample of Kenya.

The KCHSP survey asks the type of employment contract: written contract, verbal agreement, implied contract, or no contract. We define a dichotomous variable equal to 1 if the contract is written, 0 otherwise. We regress this variable on a variable called $FracOnePager_c \times Post_t$. The variable $FracOnePager_c$ is the fraction of court stations in a county that received the One-Pagers.[18] For example, the county of Mombasa has 5 court stations, two of which received the One-Pagers; a fraction of (2/5=) 0.4. This fraction varies between 0 and 1, such that there are some counties with no court stations receiving One-Pagers and other counties where all court stations receive One-Pagers.

This fraction is further interacted with the variable $Post_t$, equal to 1 in the quarters 2, 3, and 4, and equal to 0 in quarter 1. We define $Post_t$ this way since the One-Pagers were sent in February. It is thus reasonable to expect no effect in quarter 1 (January - March) and an effect in later quarters. To the extent that some of the effect is felt instantaneously, this would serve to bias down the estimates found.

The variable $FracOnePagerCUC_c$ is defined similarly for the other treatment of One-Pagers

[17] In High courts, 62 percent of cases are civil in nature, versus only 29 percent in Magistrate courts.
[18] The KCHSP data's most disaggregated geographical variable is at the county level.

sent to the CUC. It also varies between 0 and 1 across counties. We include county fixed effects and quarter fixed effects. Standard errors are clustered at the level of the county.

Column (1) shows an effect of the OnePager_CUC on the prevalence of written contracts. This indicates greater reliance on contracts as a result of the information and accountability intervention.

This is important since jobs with such contracts pay more, as shown in Appendix L. Thus, we find an increase in wage levels in Column (2), showing a direct effect of faster courts on living standards.

Table 9—Effects on Economic Outcomes

| | (1) Contract | (2) Wage | (3) Investment | (4) Access to Credit |
|---|---|---|---|---|
| FracOnePager * Post | 0.03 | 58.50 | 43.34 | 0.04 |
| | (0.02) | (36.98) | (32.88) | (0.03) |
| FracOnePagerCUC * Post | 0.04* | 98.37** | 36.17 | 0.06 |
| | (0.02) | (41.77) | (44.58) | (0.04) |
| Observations | 35,078 | 7,457 | 25,020 | 40,508 |
| County fixed effects | YES | YES | YES | YES |
| Quarter FE | YES | YES | YES | YES |
| Mean control group | 0.119 | 247.4 | 260.9 | 0.0174 |
| SD control group | 0.324 | 307.8 | 560.3 | 1.321 |

*Note:* Robust standard errors, clustered at the level of the county. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable is equal to 1 if the individual answers "a written contract" to the question "Is ... employed on the basis of". Other answers are verbal agreement, implied contract, no contract. In Column (2), the dependent variable is payment for wages and gross salary in the last one month, trimmed at the 5 percent level. In Column (3), the dependent variable is the earnings after expenses for both worker employers and own account workers, otherwise called income from self-employment in the dataset. In Column (4), the dependent variable is equal to 1 if the individual answered: "Applied for a loan from a bank" to the question: "In the past 4 weeks what actions has ... taken to look for a job or start any kind of business/income generating activity?". That variable is multiplied by 100, such that the interpretation is in percentage point. The variable "FracOnePager" is the fraction of court stations in a county that received the One-Pagers. The variable "Post" is equal to 1 in the quarters 2, 3, and 4, and equal to 0 in quarter 1. .

Out of completeness, we show in the rest of Table 9 the other economic outcomes specified in our pre-analysis. We find an effect on investment and access to credit, but not significant, which might be due to the imperfect proxies for such concepts in the KCHSP.[19]

[19]In our pre-analysis plan, we had specified contracting behavior, consumption, investment, business creation, and access to credit as outcomes for this study. When we wrote our pre-analysis plan, we thought another wave of the Kenya Integrated Household Budget Survey (KIHBS) would become available, the 2015 wave contained such measures. The Kenyan National Bureau of Statistics collected instead the KCHSP, with fewer variables, akin to a Labor Force survey. The only variable related to contract is the one on employment contract explained above. There is no consumption data, we use instead wage, another measure of living standards. We proxy investment by income from self employment (for both working employers and own account workers). The two are related since investment generally results in greater income for the business. This variable is also a proxy for business creation since income from self-employment reflects business creation. For access to credit, we use the

In any case, the effect on wage is significant when using the FDR correction for multiple hypothesis testing (p-value=0.1). This is intuitive since the unadjusted p-value is 0.022, below 10 percent/4 outcomes*1 (first-rank)=0.025, hence still significant at 10 percent.Figure 3 below shows a binscatter of the relationship between the proportion of a county with the information and accountability treatments and wages of individuals in the county, controlling for the proportion of a county with only the information treatment. In the post period after treatment on the right-hand side, there is a clear positive relationship between the fraction of courts treated and the wage. There is no such relationship before the treatment on the left-hand side, which acts as a balance test.

Figure 3. Effects on Wages

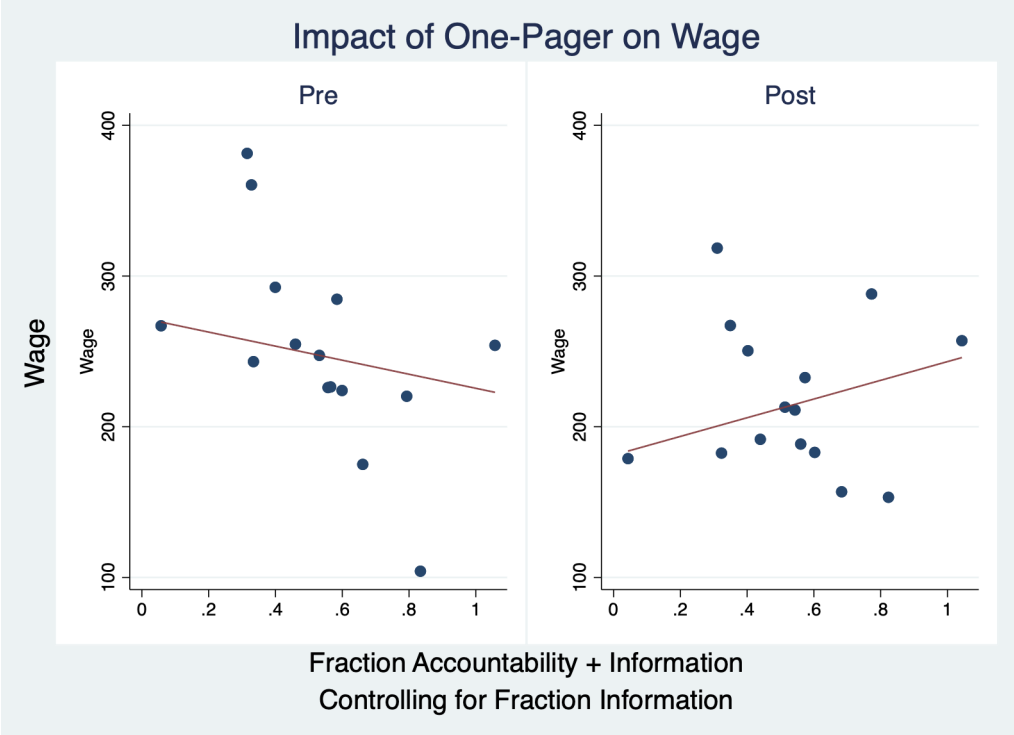


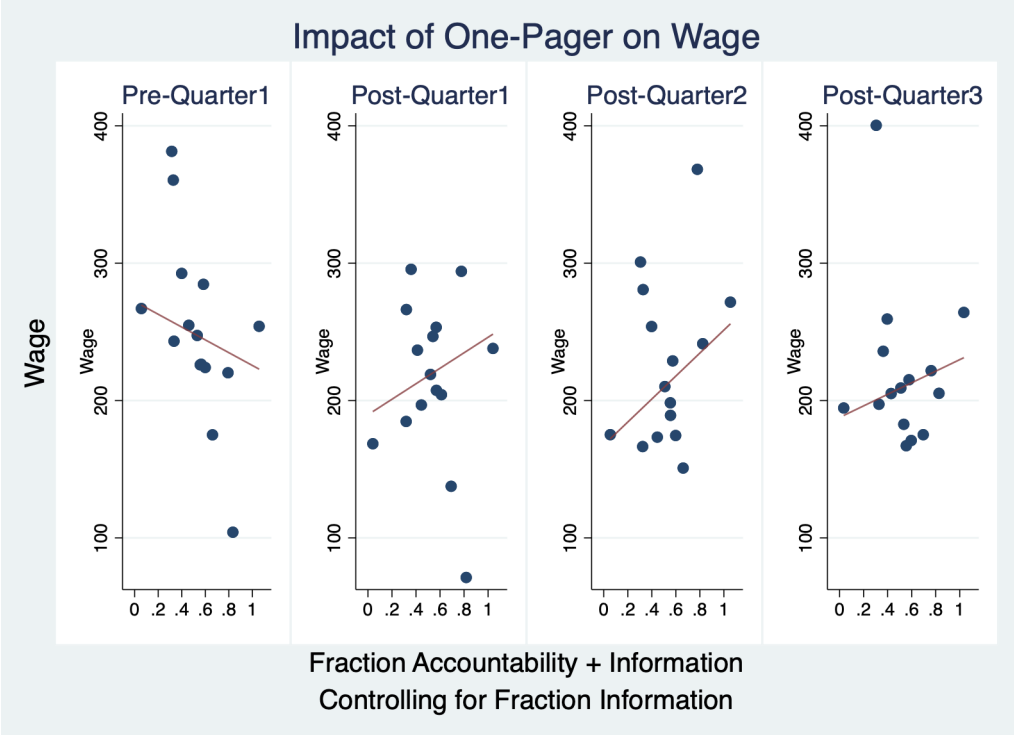

Figure 4 shows the effect per quarter. The effect is present in all quarters, and slightly weaker in the last quarter, in line with the effect on adjournment fading away after several months.

What drives the effect on wage? The effect on written employment contracts partially explains it, as shown in greater detail in a decomposition exercise in Appendix L. Yet this is not the entire story.

We dig deeper into the effect on wage by focusing on contract-intensive industries. Firms enter

question on actions to look for a job or start any kind of business/income generating activity. One answer is "Applied for a loan from a bank". We define a dichotomous variable equal to 1 if the person answered this, 0 otherwise. The issue is that this questions is only asked to unemployed persons and persons not in the labour force. It is thus an imperfect proxy for access to credit.

Figure 4. Effects on Wages




in contract with suppliers to acquire customized inputs. A more effective judiciary may foster these arrangements, incentivizing suppliers to produce quality inputs. Each worker in the downstream firm can spend less time correcting defective customized inputs and more time producing the output of the firm, which increases the marginal product of labor, and therefore wages, as shown formally in Appendix D.

To test this theory, we use data on the industry in which the individual is working (using the International Standard Industrial Classification Revision 4, ISIC Rev 4). We thus classify each industry according to its reliance on contracts. We use an index of input complexity, which can be construed as a measure of the reliance on contract enforcement mechanisms. The intuition is that a more complex input mix will increase the dependence on contract enforcement mechanisms.

To measure input complexity, a large body of work pioneered by Levchenko (2007) uses 1 minus the Herfindahl index, calculated as the sum of the share of inputs from each supplier (squared).

If an industry has only one supplier (the input mix is not complex), the share of all inputs from this supplier is 1, and 1-1=0. On the other hand, if an industry has numerous small suppliers, the sum of the share (squared) is close to zero, and 1-0=1. The input mix is more complex, and the industry relies more on contracts with all of their suppliers.

We thus call this measure CI (contract intensiveness of the industry). To calculate it, we use the

US Input-Output table available at the OECD.[20] We use this table since the goal is to measure the technological reliance of sectors on a complex input mix under a near-perfect judiciary. We calculate for each industry the Herfindahl index. The advantage of this methodology over others also used in robustness checks in this paper is that it uses the ISIC Rev 4 (such that no correspondence between sectors is needed) and it can be calculated for all firms, not just those in, say, the manufacturing sector.

In our sample, the mean of CI is 82 out of 100 (SD=11, median=86%). For ease of interpretation, we standardize CI in all the regressions below.

Figure 5 shows the effect on contract-intensive industries. Firms are classified as being contract intensive according to the median of the indicator used above (which was 86% for CI). The left hand side shows that the effect is present in such industries, not so in other industries, in line with the theory that faster courts disproportionately benefit firms in contract intensive sectors.

Figure 5. Effects on Wages in Contract Intensive Industries

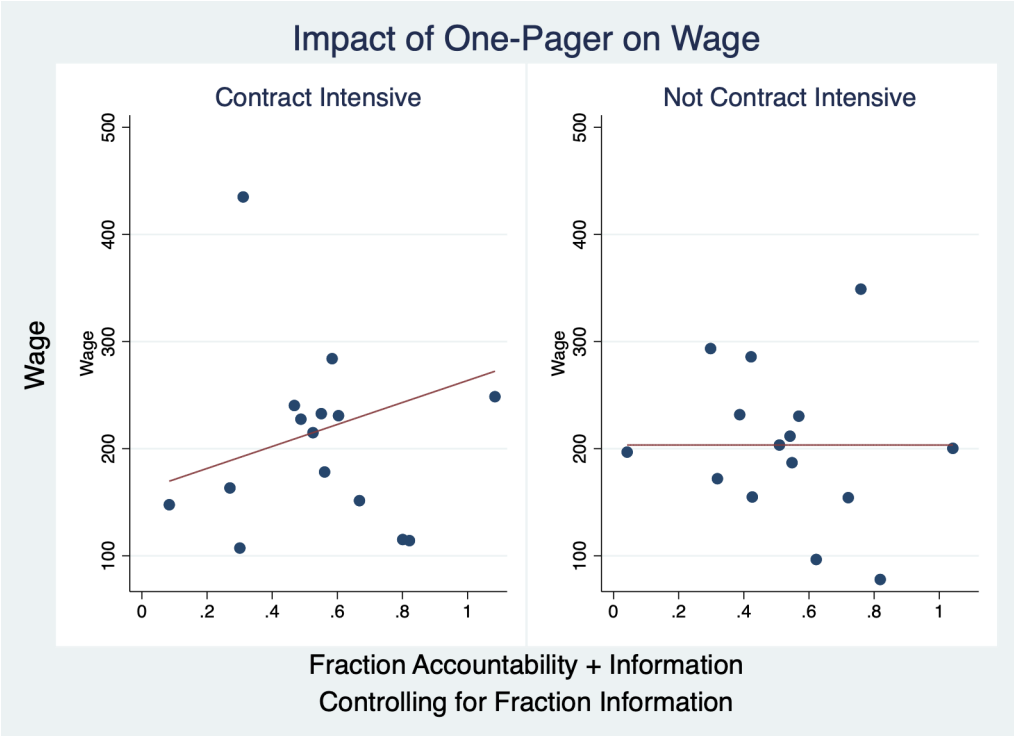



Table 10 presents the regression results. The dependent variable in this table is the wage. Column (1) shows that the wage increases in those counties which had a greater share of courts treated by the intervention, in particular the One-Pagers sent to the CUCs, in line with our earlier results

[20] Available at: https://stats.oecd.org/Index.aspx?DataSetCode=IOTSI4_2018

showing greater effect on the judicial speed in those courts.

Column (1) shows the average impact on wages to be 98.4 over a mean of 261. This translates to a 37% increase in wages. The magnitude of this association is in the ballpark of cross-country correlations on the association between case speed and GDP per capita. The cross-country correlation between case duration (Data from Doing Business project, time to enforce a contract) and GDP per capita is -0.5, indicating that a 20% decrease in case duration is associated with a (20*0.5=) 10 percent increase in GDP per capita. We find a 37% increase in wages, yet this is only for people reporting a wage (7,457 from column (1) Table 10 out of 34,887 individuals in the labor force from column 5 Table 12, which represents 7,457/34,887=21% of the population). Thus, the overall effect is (37%*0.21=) 8%, very similar to the cross-country correlation. The magnitude of the effect is in line with experimental estimates found in the literature. In Acemoglu et al. (2020), the treatment group is shown a short text explaining that a judicial reform improving the speed of courts will likely have effects similar to the one being implemented in the area. People respond by increasing their investment in an investment game by 15 percent. This shows that people respond in large ways and shift their expectations after receiving news of judicial reforms. In summary, we find that cross-sectional and experimental variation all yield roughly similar estimates. These results support the notion that speed of justice causally impacts economic growth.

The effect is observed only in Quarter 3, and becomes less significant in Quarter 4, as shown in Column (2). Thus, the effect appears strongest in the short-run, in line with the short-term effect of the one-pagers observed above.

The effect is primary driven by contract-intensive industries, as shown in Column (3). The coefficient of the interaction "Frac. OnePager_CUC * Post * CI" is 76, statistically significant. This means that a one standard deviation increase in the Contract Intensiveness measure increases the treatment effect by 76 USD PPP. The average wage being 263 USD PPP, this corresponds to a 29 percent increase in the wage.

Columns (4) and (5) confirm that there is no significant effect in industries below the median of the CI index, there statistically significant effect appears in industries above the median of the Herfindahl index.

The results are the same if we use different measures of contract intensity. Our preferred measure in Table 10 uses the US Input-Output table from the OECD. The advantage is that these tables uses the ISIC Rev 4, the same code as in the KCHSP, such that no correspondence between sectors is needed. Thus, we are able to assign a value to each observation in the KCHSP. The downside is that the OECD tables are only at the 2 digit level, a relatively coarse classification.

Table 10—Effects on contract-intensive industries

| | (1) Wage | (2) Wage | (3) Wage | (4) Above Median CI | (5) Below Median CI |
|---|---|---|---|---|---|
| Frac. OnePager * Post * CI | | | 61.61 | | |
| | | | (46.95) | | |
| Frac. OnePagerCUC * Post * CI | | | 76.18** | | |
| | | | (34.96) | | |
| Frac. OnePager * Post | 58.50 | | 52.40 | 93.36 | 39.02 |
| | (36.98) | | (36.93) | (67.34) | (40.60) |
| Frac. OnePagerCUC * Post | 98.37** | | 106.88** | 177.71** | 66.28 |
| | (41.77) | | (44.29) | (81.57) | (48.04) |
| Frac. OnePager * Quarter 2 | | 61.67 | | | |
| | | (45.16) | | | |
| Frac. OnePagerCUC * Quarter 2 | | 73.25 | | | |
| | | (48.16) | | | |
| Frac. OnePager * Quarter 3 | | 71.74** | | | |
| | | (34.70) | | | |
| Frac. OnePagerCUC * Quarter 3 | | 139.61*** | | | |
| | | (43.15) | | | |
| Frac. OnePager * Quarter 4 | | 35.97 | | | |
| | | (46.34) | | | |
| Frac. OnePagerCUC * Quarter 4 | | 82.97 | | | |
| | | (51.31) | | | |
| Observations | 7,457 | 7,457 | 6,857 | 2,189 | 4,668 |
| County fixed effects | YES | YES | YES | YES | YES |
| Quarter FE | YES | YES | YES | YES | YES |
| CI | NO | NO | YES | NO | NO |
| Mean control group | 261 | 261 | 261 | 261 | 261 |
| SD control group | 319.3 | 319.3 | 319.3 | 319.3 | 319.3 |

*Note:* Robust standard errors, clustered at the level of the county. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In all columns, the dependent variable is the wage, defined as the basic salary in last month. The variable "Frac. OnePager" is the fraction of court stations in a county that received the One-Pagers. The variable "Post" is equal to 1 in the quarters 2, 3, and 4, and equal to 0 in quarter 1. The variable CI is the standardized measure of the reliance on contracts of a certain industry. The variable "Frac. OnePager * Post * CI" is the variable of interest, and measure the effect of the reform in contract-intensive sectors.

In Table 11 below, we thus use the US Input/Output table from the Bureau of Economic Analysis.[21] The advantage is that these tables are much more disaggregated, at the 6 digit level. In fact, the inputs are at the commodity level, the most disaggregated level of analysis. The downside is that this table uses the BEA codes, which must be converted into the North American Industry Classification System (NAICS), which must be themselves converted into ISIC Rev4. We use the official correspondence tables (available at: https://unstats.un.org/unsd/classifications/Econ/isic), yet the link is not 1 to 1, such that some industries in the BEA table have multiple ISIC codes, and vice versa. Some observations in the KCHSP have also no natural match in the data. Still, we compute the CI index of each BEA code, and take the average of those indices per ISIC codes.

Column (2) presents the results, with a significant coefficient for $Frac.OnePagerCUC_c \times Post_t \times CIBEA_j$ . This is all the more remarkable in that the sample is very different, in fact much smaller, due to the imperfect match. Our main result is thus robust to using a much more disaggregated measure of contract intensity, in a different sample.

In Column (3), we use a completely different source of data for contract intensity: the World Bank Enterprise Surveys (WBES). We restrict the sample to the wealthiest countries in that sample (Belgium, Denmark, Ireland, Italy, Luxembourg, Netherlands, Portugal, Sweden). For each firm in these surveys, we compute the Herfindahl index based on the inputs disaggregated into nine categories in the Enterprise surveys (labor, raw materials and intermediate inputs, electricity, communications services, fuel, transport for inputs, water, rental of land/buildings, equipment, furniture). We then average at the four digit industry code. The issue is that the World Bank Enterprise Surveys use ISIC Rev3.1. We thus use the correspondence tables to match these codes to revision 4. The matches are imperfect, which explain the smaller sample size when using this methodology.

Column (3) shows that the interaction term $Frac.OnePagerCUC_c \times Post_t \times CIWBES_j$ is statistically significant when using this completely different measure.

In Column (4), we use a completely different measure of contract intensity. Rather than the concentration of input use, it may be the total value of inputs with respect to output that makes firms dependent on the judiciary. In other words, firms using more inputs into their production rely more on contracts. Thus, we use the total input to output value ratio as an alternative measure. If the index is zero, the firm is not using any inputs and is not relying on any contracts with suppliers. As the index increases, the firm relies more on contracts and on contract enforcement mechanisms.

Column (4) of Table 11 shows that firms in sectors with a higher total input to output ratio

[21] available at: https://www.bea.gov/industry/input-output-accounts-data

Table 11—Other measures of contract intensity

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Wage | | | |
| Frac. OnePager * Post * CI | 61.61 | | | |
| | (46.95) | | | |
| Frac. OnePagerCUC * Post * CI | 76.18** | | | |
| | (34.96) | | | |
| Frac. OnePager * Post | 52.40 | 56.18 | 24.64 | 27.78 |
| | (36.93) | (63.25) | (41.85) | (46.97) |
| Frac. OnePagerCUC * Post | 106.88** | 94.39 | 34.66 | 31.84 |
| | (44.29) | (60.38) | (47.52) | (46.14) |
| Frac. OnePager * Post * CI BEA | | -2.95 | | |
| | | (18.46) | | |
| Frac. OnePagerCUC * Post * CI BEA | | 42.79* | | |
| | | (21.42) | | |
| Frac. OnePager * Post * CI WBES | | | -13.43 | |
| | | | (23.41) | |
| Frac. OnePagerCUC * Post * CI WBES | | | 60.93** | |
| | | | (28.42) | |
| Frac. OnePager * Post * CI I/O WBES | | | | -14.52 |
| | | | | (50.64) |
| Frac. OnePagerCUC * Post * CI I/O WBES | | | | 73.08** |
| | | | | (32.69) |
| Observations | 6,857 | 3,513 | 2,582 | 2,582 |
| County fixed effects | YES | YES | YES | YES |
| Quarter FE | YES | YES | YES | YES |
| Contract-Intensity | YES | YES | YES | YES |
| Mean control group | 261 | 261 | 261 | 261 |
| SD control group | 319.3 | 319.3 | 319.3 | 319.3 |

*Note:* Robust standard errors, clustered at the level of the county. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In all columns, the dependent variable is the wage, defined as the basic salary in last month. In Column (1), the variable CI is the standardized measure of the reliance on contracts of a certain industry, using the US Input/Output table from the OECD. In Column (2), the variable CI BEA uses the US Input/Output table from the Bureau of Economic Analysis. In Column (3), the variable CI WBES uses the World Bank Enterprise Surveys. In Column (4), the variable CI I/O WBES is calculating the ratio of inputs to output using the World Bank Enterprise Surveys.

benefit more from this judicial reform.[22]

Table 12 shows that the result stays the same with different trimming of the wages (3 standard deviation, Column (2)), or using the log of wages (Column (3)), or using another measure of wage in the dataset (Total Gross Pay including Allowances (house, medical, transport and other allowances received), Column (4)). Column (5) shows no effect at the extensive margin of receiving a wage (a dummy equal to 1 if the individual receives a wage, 0 otherwise).

Overall, we find that contract intensive industries benefit from this judicial reform. A natural explanation for these findings is that firms in contract intensive industries can rely more on contracts and and have greater confidence in their capacity to resolve disputes.

In Appendix M, we provide a falsification exercise for the effect on wages. We look at the wages of teachers, which are set nationally in Kenya. Thus, these wages should not be affected by the treatment. This is indeed what we find in Table M1.

Table 13 shows that the effect on other outcomes. There is a slight increase in non-farm activities (Column (1)), in "white collar" occupations (in Column (2) or compared to "blue collar" occupations in Column (3)), a slight increase in the number of months worked. Overall, these results paint a picture of a growing formal sector, in line with a structural change.

Overall, these results tend to show that there is a pure productivity effect of faster courts on contract-intensive industries on top of the move towards written contracts documented above.

## IX. Conclusion

This paper presents results from the first randomized nationwide experiment on courts. Institutions, particularly legal institutions, are widely perceived to drive economic growth. Our study is the first randomized reform that demonstrates the causal impact of judicial institutions on economic development.

By collaborating with the Kenyan judiciary, this project uses a new administrative dataset to identify the reasons for adjournments and predict the impact of eliminating such delays. The findings demonstrate that by providing easily digestible "One-Pagers" to a randomized set of courts and sharing them with representatives of civil society, lawyers, police, and prosecutors, the number of adjournments granted to lawyers and their unprepared parties decreases.

[22] Another measure suggested by Nunn (2007) is to use the proportion of inputs sold on internationally organized exchanges. The intuition is that inputs sold on internationally organized exchanges are generic, while inputs not sold on internationally organized exchanges are specific, and thereby necessitates relationship-specific investments. The issue is that this data uses ISIC Rev 2, for which there is no existing correspondence with ISIC Rev4. We attempted a manual match between ISIC Rev2 and Rev4, and the resulting sample size was only 355 observations. The sample is small because the match is not perfect between ISIC Rev 2 and ISIC Rev4. Moreover, the methodology is only available the manufacturing sector, which is small in Kenya. This is why our preferred estimate is using the Input/Output tables which includes all sectors of the economy.

Table 12—Other Measures of Wage

| | (1) Wage | (2) Wage Trim 3 sd | (3) Log Wage | (4) Total Gross Pay | (5) Extensive Margin Wages |
|---|---|---|---|---|---|
| Frac. OnePager * Post * CI | 61.61 | 63.25 | 0.37 | 59.99 | 0.022 |
| | (46.95) | (45.94) | (0.32) | (59.51) | (0.033) |
| Frac. OnePagerCUC * Post * CI | 76.18** | 74.91** | 0.33* | 110.21* | 0.005 |
| | (34.96) | (35.45) | (0.18) | (57.14) | (0.026) |
| Frac. OnePager * Post | 52.40 | 45.80 | 0.26 | 69.39 | 0.016 |
| | (36.93) | (37.56) | (0.35) | (64.07) | (0.037) |
| Frac. OnePagerCUC * Post | 106.88** | 103.29** | 0.55 | 173.95** | -0.008 |
| | (44.29) | (44.23) | (0.35) | (67.44) | (0.029) |
| Observations | 6,857 | 6,827 | 6,857 | 3,574 | 34,887 |
| County fixed effects | YES | YES | YES | YES | YES |
| Quarter FE | YES | YES | YES | YES | YES |
| CI | YES | YES | YES | YES | YES |
| Mean control group | 261 | 261 | 8.225 | 436.4 | 0.0921 |
| SD control group | 319.3 | 319.3 | 1.819 | 462.4 | 0.289 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent.

Table 13—Other Outcomes

| | (1) Non-farm | (2) White Col. | (3) White vs Blue | (4) Months worked |
|---|---|---|---|---|
| OnePager * Quarter 2 | 0.05 | 0.01 | 0.05 | -0.06 |
| | (0.06) | (0.01) | (0.04) | (0.25) |
| OnePager_CUC * Quarter 2 | 0.10* | 0.03** | 0.11* | 0.43 |
| | (0.06) | (0.01) | (0.06) | (0.25) |
| OnePager * Quarter 3 | 0.03 | 0.02** | 0.13*** | -0.04 |
| | (0.08) | (0.01) | (0.05) | (0.32) |
| OnePagerCUC * Quarter 3 | 0.03 | 0.04*** | 0.18*** | 0.45 |
| | (0.06) | (0.01) | (0.06) | (0.28) |
| OnePager * Quarter 4 | -0.05 | 0.01 | 0.09* | 0.22 |
| | (0.07) | (0.01) | (0.05) | (0.39) |
| OnePagerCUC * Quarter 4 | 0.07 | 0.04*** | 0.19*** | 0.73* |
| | (0.05) | (0.01) | (0.06) | (0.37) |
| Observations | 34,894 | 86,647 | 15,878 | 19,947 |
| County fixed effects | YES | YES | YES | YES |
| Quarter FE | YES | YES | YES | YES |
| Mean control group | 0.398 | 0.0569 | 0.326 | 9.431 |
| SD control group | 0.490 | 0.232 | 0.469 | 3.152 |

*Note:* Robust standard errors, clustered at the level of the county. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In all columns, the dependent variable is the wage, defined as the basic salary in last month. In Column (2), tenure is the number of years on the job. In Column (3), gender is a dichotomous variable equal to 1 if male, 0 if female. In Column (4), age is in years. In Column (5), tenure is the number of years on the job. In Column (6), education is a set of dummies for: junior_secondary senior_secondary certificate undergrad grad adult_ed vocational madrassa. Primary school is the omitted category. In Column (7), household size is the number of individuals in the household.

We find a reduction in adjournments particularly for civil cases, cases of breach of contract, employment related matters, commercial cases, and succession cases. People perceive this reduction in adjournments as beneficial.

We find downstream economic effects. There are more written labor contracts, in line with the view that faster courts increase the incentives to enter into contracts. We find strong effects on the productivity of firms in contract-intensive industries. Our results thus suggest the mechanism is that faster courts improve contract enforcement, reliance on contracts, and investment, spurring productivity.

In conclusion, our study provides valuable insights into the benefits of leveraging technology and accountability in the judicial system. As countries around the world face similar challenges in court delays and backlogs, the findings of our study offer a promising pathway towards achieving more efficient and effective justice systems, and highlight the need for continued investments in technology and data-driven solutions to enhance court performance globally.

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# ONLINE APPENDIX (Not For Publication)

## Appendix A: Descriptive Statistics on Type of Cases

There are 33 percent civil cases, the rest being criminal cases. Among civil cases, cases can be personal injury (11% of all cases), family (4%), succession (7%), commercial (5%), or other (8%). Among criminal cases, cases can be about property (15% of all cases), violent (12%), state regulations (7%), disturbance (2%), drugs (3%), sexual (3%), fraud (1%), other (17%).

Table A1—Descriptive Statistics

| | Mean | SD | N |
|---|---|---|---|
| Type of case | | | |
| Civil | 0.33 | 0.47 | 5426222 |
| Personal Injury | 0.11 | 0.31 | 5192017 |
| Family | 0.04 | 0.20 | 5192017 |
| Succession | 0.07 | 0.25 | 5192017 |
| Commercial | 0.05 | 0.21 | 5192017 |
| Other Civil | 0.08 | 0.27 | 5237056 |
| Property | 0.15 | 0.36 | 5192017 |
| Violent | 0.12 | 0.33 | 5192017 |
| State Regulations | 0.07 | 0.25 | 5192017 |
| Disturbance | 0.02 | 0.12 | 5192017 |
| Drugs | 0.03 | 0.16 | 5192017 |
| Sexual | 0.03 | 0.17 | 5192017 |
| Fraud | 0.01 | 0.12 | 5192017 |
| Other Criminal | 0.17 | 0.38 | 5282718 |

## Appendix B: Model in the One-Pager

We use the DCRT data to measure the link between adjournments and court performance. We use the following specification:

$$CCR_{cm} = \beta_0 + \beta_{adj} Adj_{cm} + \alpha_c + \delta_m + \varepsilon_{cm} \qquad (1)$$

where $c$ is for court $c$, $m$ for month $m$, $CCR_{cm}$ is the CCR of court $c$ in month $m$, $Adj_{cm}$ is the proportion of cases seen in the month ending with an adjournment, $\alpha_c$ court fixed effects, $\delta_m$ month-year fixed effects, and $\varepsilon_c$ is the disturbance term.

We estimate this relationship separately for civil and criminal cases. Based on data on and before 2018, we find a statistically significant coefficient $\beta_{adj}$ of -5 for civil cases (and -1 for criminal cases), i.e., a 1 percentage point reduction in the proportion of adjourned cases would result in a 5 percentage point increase in the case clearance rate. The logic is simple: if there are less adjournments, more cases get resolved, which increases the CCR.

These estimates are quantitatively large since the average proportion of cases ending with an adjournment is 14 percent, and the average clearance rate is M=94 (SD=64). Thus reducing adjournments from 14 to 0 percent, i.e. eradicating adjournments, would be associated with a [14*5=] 70 percentage point increase in the clearance rate.

We use the estimate $\beta_{adj}$ obtained above to predict the impact on CCR of reducing adjournments. We take the absolute value since $\beta_{adj}$ is negative (more adjournments mean less CCR). One can then simply predict the impact on CCR if the top reason for adjournments was reduced from their current level in month $m$ (i.e., $AdjTop1_{cm}$) to zero with the formula:

$$PredictionCCR_{cm}AdjTop1 = |\beta_{adj}| \times AdjTop1_{cm}$$

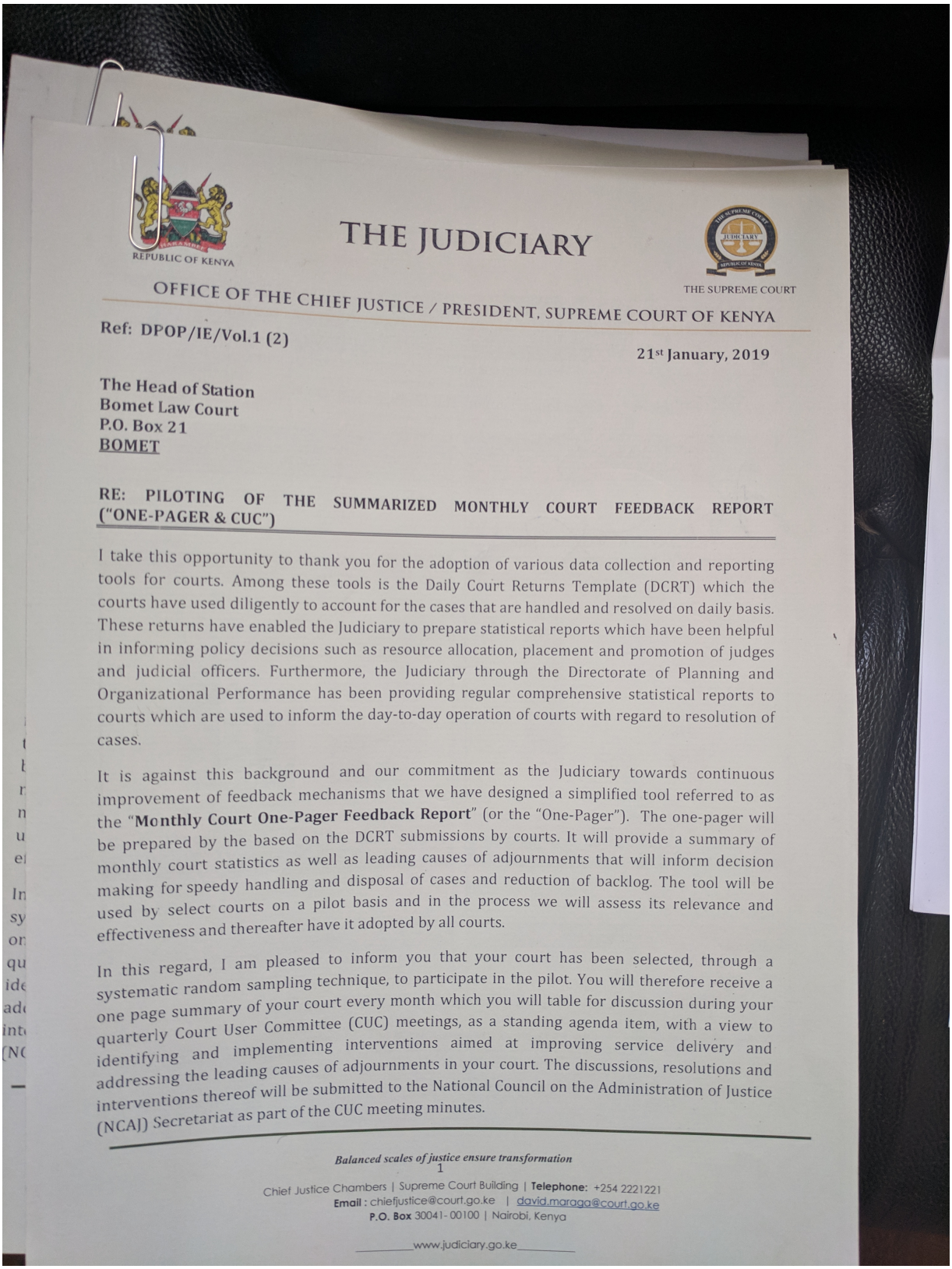
The interpretation is: a reduction in the top reason for adjournment from current levels (i.e., $AdjTop1_{cm}$) to zero is associated with an increase in CCR by $PredictionCCR_{cm}AdjTop1$. After extensive piloting with officials in the Kenyan judiciary and judges, this sentence was judged slightly difficult to understand and simplified to: "Addressing [the top reason for adjournment] increases CCR by [$PredictionCCR_{cm}AdjTop1$]". This sentence is added on the One-Pager (see Figure 1 for an example). We predict the impact on CCR if the top three reasons of adjournments were

addressed. These three sentences constitute the actionable information presented to the judge or to the judge and the public.

## Appendix C: Instructions from Chief Justice

Here is the full text of instructions from the Chief Justice accompanying the OnePager_CUC. The text for the other intervention OnePager is the same except for the paragraph mentioning the CUC meetings.

Figure C1. Instructions by Chief Justice



REPUBLIC OF KENYA

# THE JUDICIARY

THE SUPREME COURT

OFFICE OF THE CHIEF JUSTICE / PRESIDENT, SUPREME COURT OF KENYA

**Ref: DPOP/IE/Vol.1 (2)**

**21st January, 2019**

**The Head of Station**
**Bomet Law Court**
**P.O. Box 21**
**BOMET**

**RE: PILOTING OF THE SUMMARIZED MONTHLY COURT FEEDBACK REPORT ("ONE-PAGER & CUC")**

I take this opportunity to thank you for the adoption of various data collection and reporting tools for courts. Among these tools is the Daily Court Returns Template (DCRT) which the courts have used diligently to account for the cases that are handled and resolved on daily basis. These returns have enabled the Judiciary to prepare statistical reports which have been helpful in informing policy decisions such as resource allocation, placement and promotion of judges and judicial officers. Furthermore, the Judiciary through the Directorate of Planning and Organizational Performance has been providing regular comprehensive statistical reports to courts which are used to inform the day-to-day operation of courts with regard to resolution of cases.

It is against this background and our commitment as the Judiciary towards continuous improvement of feedback mechanisms that we have designed a simplified tool referred to as the "**Monthly Court One-Pager Feedback Report**" (or the "One-Pager"). The one-pager will be prepared by the based on the DCRT submissions by courts. It will provide a summary of monthly court statistics as well as leading causes of adjournments that will inform decision making for speedy handling and disposal of cases and reduction of backlog. The tool will be used by select courts on a pilot basis and in the process we will assess its relevance and effectiveness and thereafter have it adopted by all courts.

In this regard, I am pleased to inform you that your court has been selected, through a systematic random sampling technique, to participate in the pilot. You will therefore receive a one page summary of your court every month which you will table for discussion during your quarterly Court User Committee (CUC) meetings, as a standing agenda item, with a view to identifying and implementing interventions aimed at improving service delivery and addressing the leading causes of adjournments in your court. The discussions, resolutions and interventions thereof will be submitted to the National Council on the Administration of Justice (NCAJ) Secretariat as part of the CUC meeting minutes.

*Balanced scales of justice ensure transformation*

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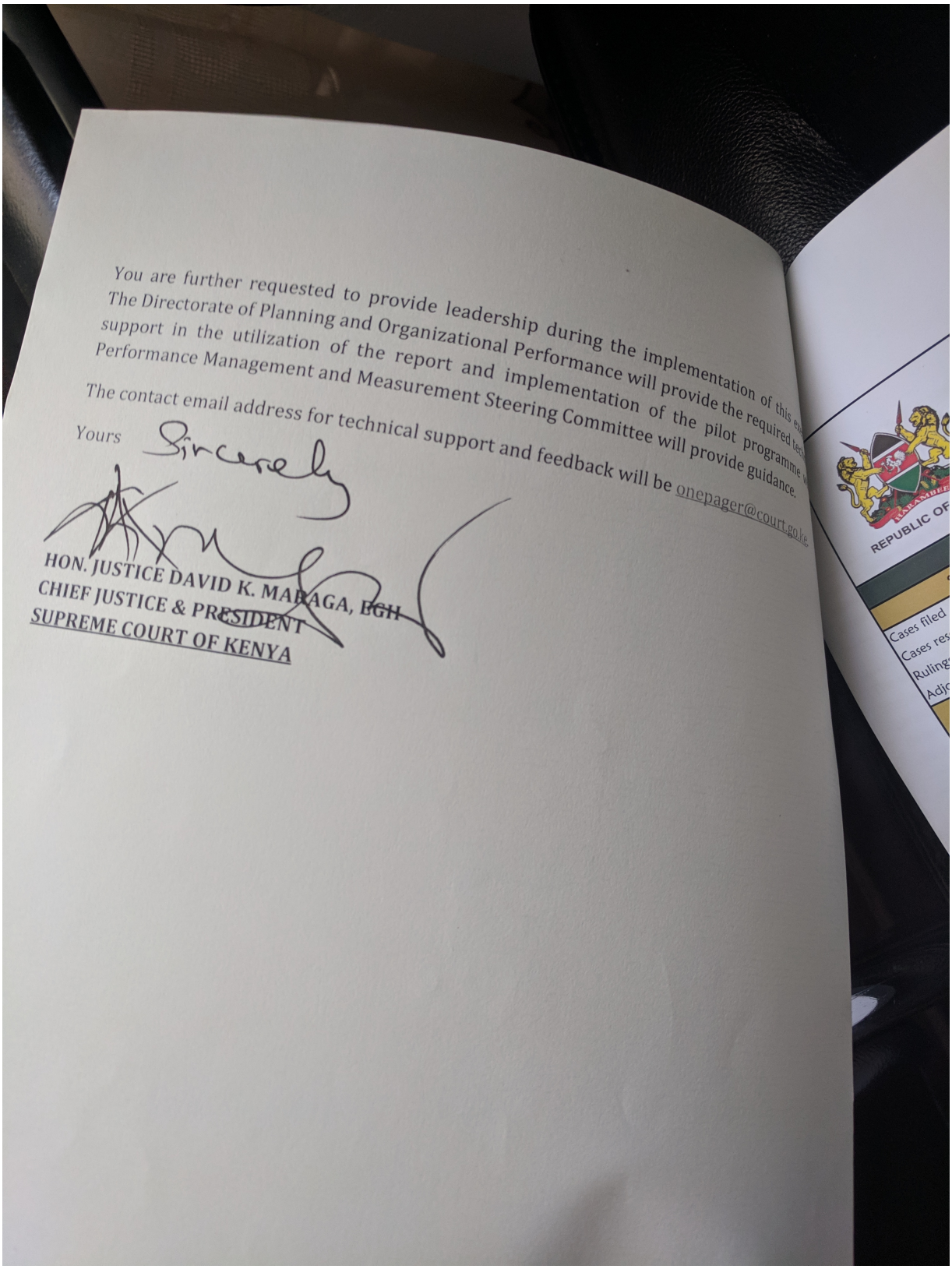
Figure C2. Instructions by Chief Justice



## Appendix D: Model

Suppose a firm contracts with a supplier to produce a customized good (which has value only for the firm). The supplier exerts effort $e \in [0,1]$, of which he has an endowment $\bar{e}$. Effort $e$ is observable, there is perfect information. This yields output $A$ with probability $\sqrt{e}$, and 0 with probability $1-\sqrt{e}$. Thus, output produced is $A\sqrt{e}$. For simplicity, the utility function $u$ of the seller is linear in consumption $c$ and leisure $l$, $u(c,l) = c + l$, such that there is no risk-aversion effects. The buyer promises in a contract to pay $A\sqrt{e}$. The seller chooses $e$ to maximize utility:

$$\begin{aligned} max_e \quad & A\sqrt{e} + \bar{e} - e \\ s.t. \quad & e \leq \bar{e} \end{aligned}$$

The first-order condition for an interior solution leads to equilibrium effort level $e^* = \left[\frac{A}{2}\right]^2$. Output is $y^* = \frac{A^2}{2}$.

Once this effort level has been sunk and output has been produced, the buyer can renegotiate prices down to offer a minimal amount $\varepsilon > 0$. Since there are no other buyers for this customized good, the seller is "held up".

The seller can sue in court. To model the judiciary in a simple way, we assume that a judgment is made in favor of the seller with probability $p$, after time $T$, and with legal costs $l$ (proportional to the value of the cause). The seller thus recovers a fraction $p\beta^T - l$ of its output.

The production function of the seller becomes: $(p\beta^T - l)A\sqrt{e} - e$. The first order condition yields: $e^* = \left[(p\beta^T - l)\frac{A}{2}\right]^2$.

This has implications for the firm (the buyer of the customized good). Effort is lower than in the optimal case with no contractual difficulties. The output associated with this effort is $A\sqrt{e} = A\sqrt{\left[(p\beta^T - l)\frac{A}{2}\right]^2} = \frac{A^2}{2}(p\beta^T - l)$, less then $\frac{A^2}{2}$ since $p\beta^T - l < 1$ (the judiciary is less than perfect $p < 1$, slow (high $T$), and costly to access (high $l$)).

One can construe this lesser output as a defective customized good, or not fully customized, caused by contractual difficulties, in a similar way as in Boehm and Oberfield (2020). In that case, the firm needs to hire extra labor or use some of its labor force to correct these deficiencies. Suppose the firm faces the choice for each worker of outsourcing their work to an outside supplier or using this worker to produce the output, in a more vertically integrated way. Then each worker must spend a fraction of their time $1 - (p\beta^T - l)$ correcting the defective output. For each unit of labor, the firm only has a fraction available $(p\beta^T - l)$, the rest must be spent on correcting the defective inputs. The labor force is therefore diminished: instead of $L$, the firm only gets $(p\beta^T - l)L$.

The production function of firm $i$at time $t$ is:

$$Y_i(t) = F\left(K_i(t), \left(p\beta^T - l\right) L_i(t)\right)$$

The term $\left(p\beta^T - l\right)$ can also be construed as a labor-augmenting productivity term (usually called A). If $\left(p\beta^T - l\right)$ increases (the judiciary is improving), then there is more labor at the disposal of the firm, because less labor needs to be allocated to the customization of defective inputs. This paper thus opens the black box of A and models it specifically as being derived from contractual issues.

We now follow the political economy model developed in Acemoglu (2012). The only difference is to incorporate specifically the functioning of the judicial system $p\beta^T - l$ within the model.

There are three groups: the workers, entrepreneurs and the elite. Considering the elite is important to understand the motivations to set $\left(p\beta^T - l\right)$ at a certain level (potentially suboptimal as far as economic growth is concerned). The elite makes political decisions and engage as well in economic activities. The political system is an oligarchy dominated by the elite. The workers supply their labor inelastically and are of mass 1. There are $\theta^e$ elites and $\theta^m$ entrepreneurs (m for middle class), such that total population is $1 + \theta^e + \theta^m$.

Agent $i$ maximizes their discounted flow of consumption, assuming risk-neutrality: $U_i = \sum_{t=0}^{\infty} c_i(t)$.

Entrepreneurs produce according to the production function explicated above. $\overline{L}$ is the maximum size of firms (otherwise one firm holds all the labor due to constant returns to scale), which can be justified by a limited span of control for each entrepreneur. Thus, $\theta^e\overline{L} + \theta^m\overline{L}$ is the total number of jobs created. If $\theta^e\overline{L} + \theta^m\overline{L} < 1$, there is unemployment and equilibrium wage $w = 0$. Suppose $\theta^e\overline{L} < 1$, such that there are not enough elites to hire the entire population.

There is a linear tax on output $\tau(t)$ which serves to finance lump-sum transfers to each of the three groups: $T^w$, $T^m$, and $T^e$. The government budget constraint is:

$$T^w + T^m + T^e \leq \Phi \int_i \tau_i(t) F(K_i, L_i) di$$

$\Phi \in [0, 1]$ is a measure of state capacity, in other words the ability to collect resources from the economy. If $\Phi = 0$, all the revenue collected is wasted. In that case, the elite does not care about revenue extraction and only cares about the economic competition with entrepreneurs.

The political process announces $\tau(t+1)$. Given this, entrepreneurs decide their production:

$$U_i = \sum_{t=0}^{\infty} c_i(t)$$
$$s.t. \qquad K_i(t+1) = (1-\delta)K_i(t) + I_i(t)$$

Where $\delta$ is the depreciation rate and $I$ is investment. Given investment is: $I_i(t) = (1-\tau(t))F\left(K_i(t), \left(p\beta^T - l\right)L_i(t)\right) - c_i(t) - wL_i(t) + T^m(t)$ (where $w$ is the wage). Dividing by $L_i(t) = 1$ and rearranging leads to: $c_i(t) = (1-\tau(t))f(k_i(t)) - (k_i(t+1) - (1-\delta)k_i(t)) - w + T^m$, where $k$ is capital stock per worker and $f(.)$, the production function per worker.

To make progress, one can use basic elements of dynamic programming. The consumption Euler equation is: $\frac{\partial U}{\partial y} + \beta V'(y) = 0$, where $U$ is the instantaneous utility function, $V$ the continuation value, $x$ is the state variable $k_i(t)$, and $y$ is the control variable $k_i(t+1)$. Thus, in this case: $\frac{\partial U}{\partial y} = -1$ (since $U$ is $c_i(t)$, and $k_i(t+1)$ appears with the negative sign in the formulation of $c_i(t)$).

The envelope theorem delivers: $V'(x) = \frac{\partial U}{\partial x} = (1-\tau(t))f'(k(t)) + (1-\delta)$.

Putting the two parts together yields:

(D1) $$-1 = \beta(1-\tau(t+1))f'(k^*(t+1)) + (1-\delta)$$

Given $\tau(t+1)$, this expression delivers the $k_i^*(t+1)$ that will be chosen by entrepreneurs.

Suppose the production function is Cobb-Douglas: $Y_i(t) = \frac{1}{\alpha}K_i(t)^{\alpha}\left(\left(p\beta^T - l\right)L_i(t)\right)^{1-\alpha}$. $\frac{1}{\alpha}$ is added as a convenient normalization. Suppose also $\delta = 1$, depreciation does not play a role.

Output per worker is: $\frac{Y_i}{L_i} = \frac{1}{\alpha}\left(p\beta^T - l\right)^{1-\alpha}k_i^{\alpha} = f(k_i)$.

In this case, equation (1) becomes:

$$k_i^*(t+1) = [\beta(1-\tau(t+1))]^{\frac{1}{1-\alpha}}\left(p\beta^T - l\right)$$

Importantly, one can see from this expression that capital stock per worker is an increasing function of the judiciary's efficiency summarized in $p\beta^T - l$.

Entrepreneurs' profit is then: $\Pi_i = (1-\tau)F(K_i, L_i) - RK_i - wL_i$. Output per worker is: $\frac{\Pi_i}{L_i} = (1-\tau)\left(f(k_i) - k_i f'(k_i)\right) - w$ (since the return to capital $R = (1-\tau)f'(k_i)$ from profit maximization with respect to $K$).

Replacing $f$ by its Cobb-Douglas expression leads to:

$$\frac{\Pi_i}{L_i} = (1-\tau)^{\frac{1}{1-\alpha}}\left(p\beta^T - l\right)\frac{1-\alpha}{\alpha}\beta^{\frac{\alpha}{1-\alpha}} - w$$

The first term is the net marginal product (profitability) of labor: $MPL_i$, net of the costs of investment $RK_i$. If the wage is above this $MPL_i$, then the firm hires $L_i = 0$. If the wage is below this $MPL_i$, then the firm hires $L_i = \overline{L}$.

Suppose we are in the full employment case such that the number of jobs created is: $\theta^e\overline{L}+\theta^m\overline{L} > 1$. Otherwise, there are fewer jobs than workers and $w = 0$.

What is the equilibrium wage under these circumstances?

Suppose the quality of the judiciary faced by the elite is different from the one face by entrepreneurs. In the extreme, suppose: $\left(p\beta^T - l\right)^e = 1$. In other words, the elites through their personal connections have access to a perfect judiciary that will always rule for them ($p = 1$), fast ($T = 0$), and with no legal fees associated ($l = 0$). Suppose moreover that the elite does not levy a tax on itself since they decide the rules of the game: $\tau^e = 0$. Under those circumstances: $MPL^e > MPL^m$. Notice that businesses of entrepreneurs are not less productive per se, they are less productive because they face a lower $p\beta^T - l$ and a greater tax rate.

To find the equilibrium wage, start with $w = 0$. One firm can increase $w$ by a small amount, still make a profit, and attract all the workers. Thus, $w$ increases until it reaches $min\left(MPL^e, MPL^m\right) = MPL^m$. Above this level, the entrepreneurs cannot make a profit. The elite does not need to raise wages any further since $\theta^e\overline{L} < 1$: every firm managed by the elite can find workers. Therefore, the equilibrium wage is $w = MPL^m$. At this wage, the elite can hire $\overline{L}$. The entrepreneurs get the rest: $1 - \theta^e\overline{L}$.

What will the elite decide, in terms of $\tau$ and $p\beta^T - l$? The goal of the elite is to maximize their transfers, thus they will set: $T^w = T^m = 0$ and $\tau^e = 0$. The government budget constraint thus becomes:

$$\theta^e T^e = \Phi\tau^m(t)\int_{i\in S^m} F(K_i, L_i)di$$

with $S^m$ the set of entrepreneurs. Replacing $F(K_i, L_i)$ by $L_i f(k_i)$ leads to: $T^e = \frac{1}{\theta^e}\Phi\tau^m(t)f(k^*(t))\theta^m L^m$.

Thus, the maximization problem of the elite is:

$$V^e(\tau(t), K_i(t)) = max_{\tau^m}\left[(MPL^e - w)L^e + T^e(t) + \beta V^e\left[\tau(t+1), K_i(t+1)\right]\right]$$

$V^e$ is the continuation value for the elite. The first term $(MPL^e - w)L^e$ is the profit made from the elite's businesses. The equilibrium wage being $w = MPL^m$, this term exemplifies the economic competition between the elite and entrepreneurs. The elite will want to depress the equilibrium wage to maximize their own profits. They can do so using two levers. First they can increase the taxation rate $\tau^m$ on the entrepreneurs which will reduce the marginal product of labor since

$MPL^m = (1-\tau^m)^{\frac{1}{1-\alpha}} \left(p\beta^T - l\right) \frac{1-\alpha}{\alpha} \beta^{\frac{\alpha}{1-\alpha}}$. The downside is that this will also reduce tax revenues in $T^e(t)$. Second, they can decrease the efficiency of the judiciary: $p\beta^T - l$.

The second term is transfers obtained from taxation $T^e(t) = \frac{1}{\theta^e}\Phi\tau^m(t)f(k^*(t))\theta^m L^m$. With the Cobb-Douglas specification: $f(k_i^*) = \frac{1}{\alpha}\left(p\beta^T - l\right)^{1-\alpha} k_i^{*\alpha} = \frac{1}{\alpha}\left(p\beta^T - l\right)\left[\beta(1-\tau)\right]^{\frac{\alpha}{1-\alpha}}$.

The third term $V^e$ is the continuation value at time $t+1$ discounted to the present.

The elite pursues two objectives (which may conflict with each other): maximizing their businesses' profits (first term) and maximizing transfers from taxing entrepreneurs (second term).

Replacing $MPL^e$, $w$, and $T^e(t)$ by their expressions leads to:

$$
\begin{aligned}
V^e(\tau(t), K_i(t)) = max_{\tau^m} \Bigg[ \Bigg[ & \tfrac{1-\alpha}{\alpha}\beta^{\frac{\alpha}{1-\alpha}} - (1-\tau^m)^{\frac{1}{1-\alpha}} \left(p\beta^T - l\right) \tfrac{1-\alpha}{\alpha}\beta^{\frac{\alpha}{1-\alpha}} \Bigg] L^e \Bigg] \\
& + \tfrac{1-\theta^e\overline{L}}{\theta^e}\Phi\tau^m(t)\tfrac{1}{\alpha}\left(p\beta^T - l\right)\left[\beta(1-\tau)\right]^{\frac{\alpha}{1-\alpha}} \\
& \beta V^e\left[\tau(t+1), K_i(t+1)\right]
\end{aligned}
\tag{D2}
$$

where the first term on the first line is economic competition, the second term on the second line is revenue extraction, and the third term on the third line is the continuation value.

We can apply dynamic programming once more to solve for the equilibrium. The consumption Euler equation is: $\frac{\partial U}{\partial y} + \beta V'(y) = 0$, where $U$ is the instantaneous utility function, $V$ the continuation value, $x$ is the state variable $\tau(t)$, and $y$ is the control variable $\tau(t+1)$. The instantaneous utility function $U$ does not depend on the future, thus $\frac{\partial U}{\partial y} = 0$, and $V'(y) = 0$. The envelope theorem gives: $V'(x) = \frac{\partial U}{\partial x}$. Thus, in this particular case, maximizing the elite's utility function is equivalent to maximizing its instantaneous utility function.

The maximization leads to an optimal $\tau^m = \frac{\kappa}{1+\kappa}$, with $\kappa = \frac{1-\alpha}{\alpha}\left(1 + \frac{\theta^e\overline{L}}{\Phi(1-\theta^e\overline{L})}\right)$. It can be shown that $\tau < 1$.

Suppose now that the elite can also choose $p\beta^T - l$. What is the optimal amount they will choose? Consider equation (2). If the only motive is revenue extraction, then the first term representing the economic competition disappears. The only term of interest is the second term representing extraction from the entrepreneurs. In that case, $p\beta^T - l$ should be set at its maximum level of 1 to increase the output of entrepreneurs. A better judiciary will lead to more revenue extraction.

In contrast, suppose there is economic competition between the elites and entrepreneurs and no revenue extraction. In the extreme, suppose $\Phi = 0$, such that the second term disappears. In that case, the elite wishes to decrease $w$ to increase their profit. $p\beta^T - l$ should be set at its lower level possible to depress wages.

Overall, there are two implications of this model:

1. The equilibrium wage level is an increasing function of the judiciary's effectiveness: $p\beta^T - l$.

This is obvious from its expression: $w = min\left(MPL^e, MPL^m\right) = MPL^m = (1-\tau^m)^{\frac{1}{1-\alpha}}\left(p\beta^T - l\right)^{\frac{1-\alpha}{\alpha}}\beta^{\frac{\alpha}{1-\alpha}}$; with $\tau^m = \frac{\kappa}{1+\kappa}$ and $\kappa = \frac{1-\alpha}{\alpha}\left(1 + \frac{\theta^e\overline{L}}{\Phi(1-\theta^e\overline{L})}\right)$.

The intuition is that each unit of labor spends less time correcting defective customized inputs and more time producing output. Thus when $p\beta^T - l$ increases, the net marginal product (profitability) of labor increases.

This is only true for contract-intensive industries, which was the starting point of this model (a firm contracts with a supplier which leads to contractual issues). This argument is not valid for firms not contracting with suppliers for relationship-specific investments. We test this empirical implication in the data.

2. The elite has incentives to lower $p\beta^T - l$ under certain conditions, i.e., there is economic competition between the elite and entrepreneurs, which dominates the revenue extraction motive. In the extreme case, $\Phi = 0$ such that the elite does not care about revenue extraction. In that case, the only motive of the elite is to lower wages to maximize their profits.

This explains why we might observe low-quality judiciaries around the world. If revenue extraction was the main channel, there would be incentives for the elite to provide the best possible judiciary.

The conclusion of this model is that the elites can block the development of contract-intensive industries through a sub-par judiciary if they compete economically with this sector. This may explain the small size of the contract-intensive sector in developing countries which usually face this situation of an oligarchy dominated by an elite, themselves engaged in business ventures possibly in contract-intensive sectors. This has welfare implications since the model shows that wages, and therefore living standards, of workers in that sector are negatively affected.

## Appendix E: Sampling for Experimental Design

To achieve balance, we stratify on geographical variables and on a slow/fast court dummy.

For the geographical variables, we established a list of 8 regions that do not correspond exactly to the official regions but that make sense distance-wise to organize potential future regional meetings to debrief court stations about the interventions. For example, Thika court is in Central province but it is easier and cheaper for them to travel to Nairobi for the meeting. Therefore, Thika was classified in Nairobi, not Central.

We also stratify on a slow/fast court dummy. To build this dummy, we use average time to disposition at the station level. We compute the median of time to disposition, and define a dichotomous variable equal to 1 if the court station is above the median time to disposition, 0 otherwise.

We then stratify on 1) regions, and 2) time to disposition. This means creating 8 (regions)*2 (above median time to disposition, i.e., slow stations, or below median time to disposition, i.e., fast stations) = 16 strata of court stations. Within each strata, we then split the court stations into three groups: control, "One-Pager" and "One-Pager + CUC". This produces a sampling plan with 41 stations in the control group, 41 in the "One-Pager", and 41 in the "One-Pager + CUC".[23]

This procedure ensures that the treatment is balanced on time to disposition. In fact, one can regress time to disposition on control, "One-Pager" and "One-Pager + CUC", and we find a t-statistic of -0.38 and -0.29 respectively.

This technique does not ensure that the treatment and control groups will be balanced on other variables. To check this, we regress treatment on four other variables: number of cases filed at the station level, number of adjournments civil, number of adjournment criminal, and due process.[24] The number of cases filed at the station level is a proxy for court size. Ideally, one would like to have a balance of small and big courts in each treatment group. The number of adjournments is an important intermediate variable in this project since the one-pager aims at reducing adjournments. Finally, due process will be an important outcome of this project since one would expect the one-pagers to increase speed, but not at the detriment of due process.

[23]The size of the strata can vary: for example, strata1 has 8 stations. The issue is that 8 cannot be neatly divided by 3 (for Control/OnePager/OnePager_CUC). The sampling plan starts by assigning 2 stations to control, 3 to "One-Pager", and 3 in the "One-Pager + CUC". To make sure that the control group does not always get less stations, we rotated the order of the treatments. This achieves a 44/40/39 split. We then randomly select three stations from the Control group and assign one of them to OnePager, and two of them to OnePager_CUC. This ensures a 41/41/41 split. All of this is done randomly, such that balance is achieved in the end.

[24]To get an estimate of due process, we used the 2017 Court User Satisfaction Survey and calculated the average of answers to the section "court room experience". Question 19.1 The judge/magistrate was courteous 19.2 My matter took the time I was expecting 19.3 The judge/magistrate listened and led the hearing well 19.4 My matter was started in time 19.5 The judge/magistrate made decision in a timely manner 19.6 The judge/magistrate was neutral in his/her decision. Average: 70%, as in "COURT USER SATISFACTION SURVEY, REPORT BY PERFORMANCE MANAGEMENT DIRECTORATE, JUNE, 2017"

The maximum t-statistic across all these variables is 1.84.

To achieve even better balance, this process can be repeated by rerandomizing: we draw 10,000 allocations to treatment and control, and chose the one that shows best balance on the observable variables. In that winning iteration, the "minimum maximum" t-stat is 0.57.

In particular, this plan achieves balance on the number of cases filed per station. When regressing number of cases filed per station on control, "One-Pager" and "One-Pager + CUC", we find a t-statistic of 0.15 and 0.32 respectively.

## Appendix F: Balance Tests

### *F1. Balance Test in the DCRT*

Table F1 below shows the balance test with respect to other outcomes than adjournments. Column (1) shows that the likelihood that a case gets resolved is not significantly different in the treatment groups before 2019. Similarly, there are no significant differences in the proportion of cases filed, appealed, convicted, or frivolous. There is a small difference in the proportion of cases with legal representation. We control for this factor in all regressions of the paper. There are no differences in the number of witnesses for either the plaintiff or the defendant.

Columns (9) to (21) show the balance test for the make-up of cases. There are few differences overall, with slightly more commercial cases and and less property and violent cases in treatment areas.

### *F2. Balance Test in the KCHSP*

Next we use the Kenya Continuous Household Survey Programme (KCHSP). The continuous data collection was implemented all throughout 2019 by the Kenyan National Bureau of Statistics (KNBS) which allows us to look at the effects of the intervention before and after the treatment. This data is a representative sample of Kenya. It includes individual-level data with basic sociodemographics, a labor force survey with measures of entrepreneurship, investment and access to credit, as well as some variables on contracting behavior.

We present a balance test focusing on the first quarter of 2019. We regress the outcome on the variable $FracOnePager_c$ which is the fraction of court stations in a county that received the One-Pagers.[25] For example, the county of Mombasa has 5 court stations, two of which received the One-Pagers; a fraction of (2/5=) 0.4. This fraction varies between 0 and 1, such that there are some counties with no court stations receiving One-Pagers and other counties where all court stations receive One-Pagers.

Table F2 below restricts the sample to quarter 1, and simply regresses the outcome on $FracOnePager_c$ and $FracOnePagerCUC_c$.[26]

[25] The KCHSP data's most disaggregated geographical variable is at the county level.

[26] We cannot include the stratification dummies in these regressions (the 8 region dummies and the Slow/Fast dummy) since these stratification variables are defined at the court level, whereas the KCHSP is at the individual level, with county being the most disaggregated geographical variable. For the 8 region dummies, the Kenyan judiciary established their own list at the court level that does do not correspond exactly to the official counties but that make sense distance-wise to organize potential future regional meetings to debrief court stations about the interventions. For example, Thika court is in Central province but it is easier and cheaper for them to travel to Nairobi for the meeting. Therefore, Thika was classified in the Nairobi region, not Central. Thus, there is no exact correspondence between an individual living in a certain county and the region created by the Kenyan judiciary. The Slow/Fast dummy is similarly defined at the court level, it is thus impossible to assign a specific individual to a Slow/Fast dummy since one does not know exactly which the individual would file a case were he to do so.

Table F1—Balance on other outcomes

| | (1) Resolved | (2) Filed | (3) Appeal | (4) Convicted | (5) Frivolous | (6) Legal Rep | (7) Witness Plaintiff | (8) Witness Defendant |
|---|---|---|---|---|---|---|---|---|
| OnePager | 0.0044 | -0.0049 | 0.00090 | -0.0037 | -0.0016 | 0.010 | 0.0041 | 0.0020 |
| | (0.0096) | (0.0084) | (0.0035) | (0.0089) | (0.0032) | (0.039) | (0.0058) | (0.0021) |
| OnePager CUC | 0.0049 | -0.0073 | -0.0033 | -0.00095 | 0.0038 | 0.089* | 0.0022 | -0.00081 |
| | (0.012) | (0.012) | (0.0048) | (0.011) | (0.0042) | (0.047) | (0.0058) | (0.0026) |
| Observations | 5421368 | 5421368 | 5421368 | 5421368 | 5421368 | 5421368 | 5421368 | 5421368 |

| | (9) Personal injury | (10) Family | (11) Succession | (12) Commercial | (13) Other Civil |
|---|---|---|---|---|---|
| OnePager | -0.0051 | 0.0023 | -0.0072 | 0.011 | -0.00068 |
| | (0.027) | (0.010) | (0.0097) | (0.012) | (0.011) |
| OnePager CUC | 0.033 | 0.031 | -0.0067 | 0.022* | 0.024 |
| | (0.032) | (0.019) | (0.014) | (0.013) | (0.016) |
| Observations | 5187245 | 5187245 | 5187245 | 5187245 | 5232282 |

| | (14) Property | (15) Violent | (16) State Regulations | (17) Disturbance | (18) Drugs | (19) Sexual | (20) Fraud | (21) Other Criminal |
|---|---|---|---|---|---|---|---|---|
| OnePager | -0.00086 | -0.0016 | -0.0035 | 0.0011 | -0.0045 | -0.000078 | 0.0016 | -0.0080 |
| | (0.015) | (0.015) | (0.0073) | (0.0026) | (0.0040) | (0.0052) | (0.0020) | (0.016) |
| OnePager CUC | -0.035** | -0.024** | -0.012 | -0.0043* | -0.013** | -0.0028 | 0.0027 | -0.016 |
| | (0.016) | (0.011) | (0.014) | (0.0022) | (0.0050) | (0.0042) | (0.0044) | (0.015) |
| Observations | 5187245 | 5187245 | 5187245 | 5187245 | 5187245 | 5187245 | 5187245 | 5277934 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. The sample is restricted to the period before 2019. The variable "OnePager" takes on a value of 1 if the observation is in in a court which received a One-Pager, 0 otherwise. The variable "OnePager CUC" takes on a value of 1 if the observation is in in a court which received a One-Pager and that OnePager was sent to the CUC, 0 otherwise. The regressions include the stratification dummies (the 8 region dummies and the Slow/Fast dummy) as well as a dummy for whether the court is a magistrate court or a high court.

In Column (1), the constant term shows that 50 percent of the individuals are male in the counties with no treated court stations.[27] This proportion is not significantly different in counties with more treated courts, as indicated by the insignificant coefficients of $FracOnePager_c$ and $FracOnePagerCUC_c$. Thus, the sample is well balanced across treatment and control groups as far as this variable is concerned.

The average age is 25 years old, number of years on the job is 8.5 years (for those with a job), 49 percent of the sample went to primary school, 20 percent went to secondary school, and the average household size is 3.3. The proportion of the sample with primary education is slightly lower for the treatment arm one-pagers, but not for the other treatment arm of one-pagers sent to CUC.

Table F2—Balance Test (quarter 1 of 2019)

| | (1) Gender | (2) Age | (3) Years on Job | (4) Primary | (5) Secondary | (6) HH Size |
|---|---|---|---|---|---|---|
| FracOnePager | -0.02 | -1.59 | 0.37 | -0.09* | -0.05 | 0.22 |
| | (0.01) | (1.59) | (1.63) | (0.05) | (0.04) | (0.31) |
| FracOnePager_CUC | 0.00 | -0.06 | 0.81 | -0.08 | -0.00 | 0.15 |
| | (0.01) | (1.40) | (1.49) | (0.05) | (0.04) | (0.28) |
| Constant | 0.50*** | 24.89*** | 8.46*** | 0.49*** | 0.20*** | 3.30*** |
| | (0.01) | (1.02) | (0.93) | (0.02) | (0.02) | (0.17) |
| Observations | 22,732 | 22,732 | 5,409 | 22,732 | 22,732 | 22,732 |

*Note:* Robust standard errors, clustered at the level of the county. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1) the dependent variable is gender, a dichotomous variable equal to 1 for males, 0 for males. The variable "FracOnePager" is the fraction of court stations in a county that received the One-Pagers. In Column (2), the dependent variable is age in years. In Column (3), the dependent variable is the number of years on the job. In Column (4), the dependent variable is equal to 1 if the individual has completed any years of primary school, 0 otherwise. In Column (5), the dependent variable is equal to 1 if the individual has completed any years of secondary school, 0 otherwise. In Column (6), the dependent variable is the size of the household.

Table F3 below shows the balance test with the following economic outcomes: investment (purchase of farm inputs for crop production in Column (1) and income from self employment in Column (2)), business creation (applications to permit to start businesses in Column (3) and transitions to entrepreneurship in Column (4)), access to credit (applied for a loan from a bank to look for a job or start any kind of business/income generating activity in Column (5), contracting behavior (written labor contract in Column (6)), and wage in Column (7)).

All the coefficients are not statistically significant, except for contract for the one-pager inter-

[27]In this table, we display the constant term and not the mean dependent variable as in all other tables since they are the same in this particular table. There are no variables in this model other than $FracOnePager_c$ and $FracOnePagerCUC_c$, therefore the constant term is also the mean of the dependent variable in the control group.

vention, significant at the 10 percent level. (but not for the one-pager sent to CUC intervention). Getting one significant coefficient out of 14 in this table (7 outcomes * 2 interventions) is expected at the 10 percent level.

Table F3—Balance Test With Economic Outcomes

| | (1) Agri. Inv. | (2) Income Self Emp. | (3) Permit Business | (4) Transition Entrepreneur | (5) Applied Loan | (6) Contract | (7) No PAP Wage |
|---|---|---|---|---|---|---|---|
| FracOnePager | 0.01 | -23.51 | 0.00 | 0.02 | -0.00 | -0.04* | -19.31 |
| | (0.01) | (31.77) | (0.00) | (0.03) | (0.00) | (0.02) | (37.94) |
| FracOnePagerCUC | 0.01 | 25.96 | 0.00 | 0.01 | 0.00 | -0.01 | -28.83 |
| | (0.01) | (52.84) | (0.00) | (0.02) | (0.00) | (0.04) | (43.87) |
| Constant | 0.00 | 260.12*** | -0.00 | 0.13*** | 0.00 | 0.14*** | 263.06*** |
| | (0.00) | (25.04) | (0.00) | (0.02) | (0.00) | (0.01) | (26.51) |
| Observations | 22,732 | 5,456 | 11,465 | 19,504 | 11,465 | 8,271 | 2,154 |

*Note:* Robust standard errors, clustered at the level of the county. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable is the answer to the question: "Did the household purchase farm inputs for crop production during the last month (Yes/No)". This questions is asked for each and every crop produced. The dependent variable is the sum of all answers at the household level. Results are similar if we take takes a dummy taking the value 1 if the household answers yes for any crop produced by the household, 0 otherwise. The variable "FracOnePager" is the fraction of court stations in a county that received the One-Pagers. The variable "Post" is equal to 1 in the quarters 2, 3, and 4, and equal to 0 in quarter 1. In Column (2), the dependent variable is the earnings after expenses for both worker employers and own account workers, otherwise called income from self-employment in the dataset. In Column (3), the dependent variable is equal to 1 if the individual answered: "Applied for permit to start business" to the question: "In the past 4 weeks what actions has ... taken to look for a job or start any kind of business/income generating activity? rank the three main ones". This questions is only asked to unemployed persons and persons not in the labour force. In Column (4), the dependent variable is equal to 1 if the individual is a working employer or an own-account worker, 0 otherwise, conditional on being a year ago employed, unemployed, student, housewife, retired, family worker, incapacitated, discouraged worker. In Column (5), the dependent variable is equal to 1 if the individual answered: "Applied for a loan from a bank" to the question: "In the past 4 weeks what actions has ... taken to look for a job or start any kind of business/income generating activity?". In Column (6), the dependent variable is equal to 1 if the individual answers "a written contract" to the question "Is ... employed on the basis of". Other answers are verbal agreement, implied contract, no contract. In Column (7), the dependent variable is payment for wages and gross salary in the last one month, trimmed at the 5 percent level.

*F3. Balance Test With County GDP*

Table F4 below shows the balance test using County GDP collected between 2013 and 2017 by the Kenya National Bureau of Statistics (all figures are in Million USD PPP). There is no significant association between county GDP and the fraction of court stations treated with either the OnePager or the OnePager_CUC.

Table F4—Balance Test With County GDP

| | (1) CGDP2013 | (2) CGDP2014 | (3) CGDP2015 | (4) CGDP2016 | (5) CGDP2017 |
|---|---|---|---|---|---|
| Frac. OnePager | -466.66 | -493.80 | -557.23 | -473.94 | -476.21 |
| | (448.76) | (515.86) | (623.72) | (753.35) | (886.56) |
| Frac. OnePager_CUC | 857.06 | 977.13 | 994.50 | 1,150.76 | 1,189.46 |
| | (1,783.93) | (1,973.39) | (2,190.73) | (2,460.23) | (2,667.47) |
| Observations | 47 | 47 | 47 | 47 | 47 |
| Mean control group | 2062 | 2062 | 2062 | 2062 | 2062 |
| SD control group | 3298 | 3658 | 4083 | 4618 | 5038 |

*Note:* Robust standard errors, clustered at the county level. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable is the 2013 county GDP, expressed in Million USD PPP. The variable "OnePager" is the fraction of court stations in a county that received the One-Pagers.

### *F4. Balance Test With KIHBS*

This section presents the balance test using the Kenya Integrated Household Budget Survey (KIHBS) 2015-2016. Column (1) of Table F5 shows a regression of gender (1 for males, 0 for females) on the fraction of court stations in the county treated with the OnePager or OnePager_CUC. There is no significant association there. Columns (2), (3), and (4) show no significant relationship between age, highest grade completed and wage in 2015.

Table F5—Balance Test With KIHBS

| | (1) Gender | (2) Age | (3) Highest Grade Completed | (4) Wage |
|---|---|---|---|---|
| Frac. OnePager | 0.01 | -1.75 | -0.10 | -18.26 |
| | (0.01) | (1.52) | (0.13) | (27.01) |
| Frac. OnePager_CUC | -0.00 | -0.98 | -0.11 | 51.98 |
| | (0.01) | (1.41) | (0.09) | (40.48) |
| Observations | 92,846 | 92,846 | 69,353 | 38,681 |
| Mean Dep Var | 0.494 | 23.50 | 4.144 | 174.9 |
| SD | 0.500 | 30.76 | 2.352 | 394.3 |

*Note:* Robust standard errors, clustered at the county level. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1) the dependent variable is gender, a dichotomous variable equal to 1 for males, 0 for males. In Column (2), the dependent variable is age in years. In Column (3), the dependent variable is equal to the highest grade completed. In Column (4), the dependent variable is the wage, defined as the basic salary in last month. The variable "Frac. OnePager" is the fraction of court stations in a county that received the One-Pagers.

## Appendix G: Heterogeneous Effects

Table G1 shows that the effect is much stronger in High Courts in Column (1), where there are more lawyers.

We then present heterogeneous effects on slow versus fast courts as specified in our pre-analysis plan. The idea is to check whether the effect is concentrated in slow courts in need of improvement.

Column (2) shows that the effect is stronger in initially slow courts, versus fast courts in Column (3).[28] A court is classified as slow if its average time to disposition is above the Kenyan average at baseline. Thus, the One-Pagers work better in slower courts. This is confirmed in Columns (4) and (5), which shows the differential response in courts above or below the median level of adjournments: once again, we see that the One-Pagers work better in courts with a high number of adjournments at baseline.

The results are weaker at the level of Magistrate Courts, where there are less lawyers, as can be seen in Table G2.

[28]There is an effect on fast courts in April, yet there is also a violation of the pre-trend in this regression, such that this result must be taken with caution.

Table G1—Effect on Adjournments in High Courts

| | (1) | (2) Slow | (3) Fast | (4) Above Median Adj. | (5) Below Median Adj. |
|---|---|---|---|---|---|
| OnePager * February 2019 | -0.059** | -0.068** | 0.021 | -0.10* | -0.044** |
| | (0.023) | (0.025) | (0.044) | (0.053) | (0.019) |
| OnePager CUC * February 2019 | -0.053*** | -0.060*** | 0.0089 | -0.093*** | -0.036* |
| | (0.016) | (0.017) | (0.045) | (0.021) | (0.019) |
| OnePager * March 2019 | 0.0080 | 0.0058 | -0.0068 | 0.043 | -0.011 |
| | (0.018) | (0.020) | (0.031) | (0.043) | (0.011) |
| OnePager CUC * March 2019 | -0.012 | -0.013 | -0.034 | 0.011 | -0.00013 |
| | (0.015) | (0.015) | (0.043) | (0.030) | (0.012) |
| OnePager * April 2019 | -0.044* | -0.043* | -0.073* | -0.078 | -0.031* |
| | (0.022) | (0.024) | (0.039) | (0.054) | (0.018) |
| OnePager CUC * April 2019 | -0.035** | -0.031 | -0.088** | -0.068* | -0.010 |
| | (0.017) | (0.018) | (0.034) | (0.035) | (0.017) |
| OnePager * May 2019 | -0.011 | -0.014 | -0.0046 | -0.055 | -0.020 |
| | (0.023) | (0.024) | (0.040) | (0.035) | (0.016) |
| OnePager CUC * May 2019 | -0.024 | -0.022 | -0.030 | -0.040 | -0.035** |
| | (0.019) | (0.021) | (0.039) | (0.028) | (0.014) |
| OnePager * After June 2019 | -0.021 | -0.035 | 0.092* | -0.028 | -0.026 |
| | (0.023) | (0.025) | (0.045) | (0.057) | (0.018) |
| OnePager CUC * After June 2019 | -0.0052 | 0.0026 | -0.040* | 0.0090 | -0.023 |
| | (0.020) | (0.022) | (0.020) | (0.030) | (0.016) |
| OnePager * Month Before | -0.018 | -0.024 | -0.15 | 0.0062 | -0.022 |
| | (0.023) | (0.020) | (0.088) | (0.046) | (0.013) |
| OnePager CUC * Month Before | 0.0035 | 0.014 | -0.23** | 0.037 | 0.0045 |
| | (0.022) | (0.021) | (0.083) | (0.027) | (0.032) |
| Observations | 1238950 | 1100117 | 138027 | 623156 | 535775 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable is a dichotomous variable equal to 1 if a hearing in the High courts ends in adjournment, 0 otherwise. In Column (2), the sample is restricted to slow courts, i.e., with a baseline average time to disposition above the Kenyan average. In Column (2), the sample is restricted to fast courts, i.e., with a baseline average time to disposition below the Kenyan average. In Column (4), the sample is restricted to courts with baseline adjournments above the median level. In Column (5), the sample is restricted to courts with baseline adjournments below the median level.

Table G2—Effect on Adjournments in Magistrate Courts

| | (1) | (2) Slow | (3) Fast | (4) Above Median Adj. | (5) Below Median Adj. |
|---|---|---|---|---|---|
| OnePager * February 2019 | -0.0078 | -0.013 | 0.0097 | 0.011 | -0.0034 |
| | (0.014) | (0.015) | (0.029) | (0.023) | (0.017) |
| OnePager CUC * February 2019 | -0.025 | -0.0054 | -0.063 | -0.016 | -0.0067 |
| | (0.018) | (0.015) | (0.040) | (0.018) | (0.023) |
| OnePager * March 2019 | 0.0033 | -0.0022 | 0.018 | 0.025 | -0.0026 |
| | (0.016) | (0.020) | (0.024) | (0.030) | (0.019) |
| OnePager CUC * March 2019 | -0.0097 | 0.0038 | -0.038 | -0.0055 | 0.018 |
| | (0.018) | (0.019) | (0.039) | (0.024) | (0.030) |
| OnePager * April 2019 | -0.0080 | -0.022 | 0.023 | 0.022 | -0.025 |
| | (0.016) | (0.019) | (0.025) | (0.028) | (0.019) |
| OnePager CUC * April 2019 | -0.020 | -0.0096 | -0.039 | -0.023 | 0.012 |
| | (0.019) | (0.019) | (0.038) | (0.020) | (0.030) |
| OnePager * May 2019 | 0.014 | 0.00018 | 0.048 | 0.067* | 0.0017 |
| | (0.019) | (0.022) | (0.031) | (0.035) | (0.017) |
| OnePager CUC * May 2019 | -0.011 | 0.00046 | -0.037 | -0.018 | 0.023 |
| | (0.020) | (0.021) | (0.045) | (0.027) | (0.026) |
| OnePager * After June 2019 | 0.0048 | 0.0067 | 0.0071 | 0.063* | -0.010 |
| | (0.018) | (0.024) | (0.020) | (0.033) | (0.014) |
| OnePager CUC * After June 2019 | -0.0041 | 0.031 | -0.073* | 0.046 | -0.0063 |
| | (0.022) | (0.023) | (0.040) | (0.034) | (0.014) |
| OnePager * Month Before | -0.0078 | -0.015 | 0.015 | 0.024 | -0.014 |
| | (0.014) | (0.016) | (0.026) | (0.022) | (0.017) |
| OnePager CUC * Month Before | -0.0062 | 0.0076 | -0.034 | 0.0059 | -0.020 |
| | (0.016) | (0.019) | (0.027) | (0.020) | (0.028) |
| Observations | 7014231 | 4736841 | 2257886 | 3162403 | 3000988 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable is a dichotomous variable equal to 1 if a hearing in the Magistrate courts ends in adjournment, 0 otherwise. In Column (2), the sample is restricted to slow courts, i.e., with a baseline average time to disposition above the Kenyan average. In Column (2), the sample is restricted to fast courts, i.e., with a baseline average time to disposition below the Kenyan average. In Column (4), the sample is restricted to courts with baseline adjournments above the median level. In Column (5), the sample is restricted to courts with baseline adjournments below the median level.

## Appendix H: Effects on Other Outcomes of Speed

Table H1 shows the effect on other outcomes of speed. Column (1) shows that more of the cases are resolved in February 2019 for both interventions, although less significantly so for the OnePager CUC intervention. Column (2) indicates that there are no more cases filed. This translates into an increased case clearance rate (CCR), which is the ratio of cases resolved over cases filed.

Table H1—Effect on Other Outcomes of Speed

| | (1) Resolved | (2) Filed | (3) CCR |
|---|---|---|---|
| OnePager * February 2019 | 0.042* | -0.0014 | 14.0 |
| | (0.025) | (0.0086) | (13.1) |
| OnePager CUC * February 2019 | 0.0056 | -0.011 | 19.4 |
| | (0.013) | (0.011) | (11.9) |
| OnePager * March 2019 | 0.024* | 0.00058 | 15.3 |
| | (0.014) | (0.0099) | (12.6) |
| OnePager CUC * March 2019 | 0.0034 | -0.012 | 33.8** |
| | (0.015) | (0.011) | (13.8) |
| OnePager * April 2019 | 0.0100 | 0.0047 | 9.39 |
| | (0.014) | (0.011) | (12.7) |
| OnePager CUC * April 2019 | 0.024 | -0.017 | 23.6* |
| | (0.016) | (0.014) | (12.7) |
| OnePager * May 2019 | 0.015 | 0.011 | 4.87 |
| | (0.015) | (0.013) | (16.5) |
| OnePager CUC * May 2019 | 0.034* | -0.0088 | 7.27 |
| | (0.020) | (0.010) | (15.6) |
| OnePager * After June 2019 | 0.0075 | 0.0025 | -0.32 |
| | (0.0096) | (0.011) | (4.77) |
| OnePager CUC * After June 2019 | -0.014 | 0.019 | -1.66 |
| | (0.011) | (0.014) | (4.92) |
| OnePager * Month Before | 0.0073 | -0.0079 | 5.50 |
| | (0.017) | (0.012) | (11.5) |
| OnePager CUC * Month Before | -0.0100 | -0.0060 | 5.60 |
| | (0.014) | (0.015) | (10.7) |
| Observations | 9047041 | 9047041 | 10512 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), the dependent variable is a dichotomous variable equal to 1 if a hearing ends in a resolution of the case, 0 otherwise. In Column (2), the dependent variable is a dichotomous variable equal to 1 if a case is filed, 0 otherwise. In Column (3), the dependent variable is the case clearance rate (CCR), which is the ratio of cases resolved during the month divided by the number of cases filed during the month (multiplied by 100), defined at the court level.

## Appendix I: Effects on Court User Satisfaction

In this section, we disaggregate the results on court user satisfaction, by the identity of the respondent: lawyers, police, prosecutors, or the general population. In Column (1) of Table I1, the statement is "The Judge listened and led the proceedings well", measured on a 1 to 4 scale (Strongly Disagree, Disagree, Agree, Strongly Agree).

We find a slight discontent by lawyers with the OnePager_CUC in Column (1), consistent with the fact that lawyers are not getting the adjournments they want. This opinion is not shared by the police / prosecutors in Column (2), or civil society (plaintiffs, defendants, relatives and witnesses) in Column (3). Moreover, lawyers think that the Judge was less neutral in his/her decision in Column (4), once again an opinion not shared by police, prosecutors or the parties. This tends to show that lawyers have a worse opinion of Judges after the OnePager_CUCs.

Table I1—Effect on Court User Satisfaction

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Judge led proceedings well | | | Judge neutral | | |
| | Lawyers | Police Prosecutors | Parties | Lawyers | Police Prosecutors | Parties |
| OnePager * 2019 | -0.18 | 0.04 | 0.01 | -0.06 | 0.10 | 0.04 |
| | (0.15) | (0.11) | (0.08) | (0.14) | (0.10) | (0.08) |
| OnePager_CUC * 2019 | -0.23* | 0.20** | -0.09 | -0.22** | 0.07 | -0.15 |
| | (0.14) | (0.09) | (0.08) | (0.11) | (0.10) | (0.09) |
| OnePager * 2015 | 0.49 | 0.33 | 0.23 | 0.46 | 0.42 | 0.15 |
| | (0.48) | (0.31) | (0.25) | (0.46) | (0.33) | (0.19) |
| OnePager_CUC * 2015 | 0.50 | 0.39 | 0.16 | 0.28 | 0.32 | 0.13 |
| | (0.48) | (0.31) | (0.23) | (0.46) | (0.32) | (0.18) |
| Observations | 1,828 | 1,831 | 8,655 | 1,769 | 1,717 | 7,661 |
| Court Station fixed effects | YES | YES | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES | YES | YES |
| Mean control group | 2.21 | 2.40 | 2.21 | 2.16 | 2.36 | 2.10 |
| SD control group | 0.64 | 0.57 | 0.74 | 0.66 | 0.59 | 0.79 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Columns (1) to (3), the dependent variable "Judge Led Proceedings Well" is measured on a 1 to 4 scale: Strongly Disagree, Disagree, Agree, Strongly Agree. The sample is restricted to lawyers in Column (1), police/prosecutors in Column (2) and the parties (plaintiffs, defendants, relatives and witnesses) in Column (3). In Columns (4) to (6), the dependent variable "Judge Neutral" is measured on the same 1 to 4 scale. The variable "OnePager*2019" is a dichotomous variable which takes on a value of 1 if the survey was conducted after 2019 and in a court which received the One-Pagers, 0 otherwise.

Notice that this discontent on the part of lawyers does not significantly translate into any formal complaints made. In Columns (1) to (3) of Table I2, the question is "Have you ever made a

complaint about court services?", where Yes is 1 and No is 0. The sample is restricted to lawyers in Column (1), police/prosecutors in Column (2) and civil society (plaintiffs, defendants, relatives and witnesses) in Column (3).

We find no more complaints of any actors in Columns (1) to (3).

Columns (4) to (9) explore corruption. In Columns (4) to (6), the question is "Did you give a bribe/unofficial payment/any favour in order to get service?", where Yes is 1 and No is 0. In Columns (7) to (9), the question is "Judges/Magistrates/Kadhis are not involved in corruption", measured on a 4 point scale (Strongly Disagree, Disagree, Agree, Strongly Agree).

We find no evidence of corruption of judges, according to lawyers, police/prosecutors, or civil society.

Table I2—Effect on Court User Satisfaction

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | Complaint about court services? | | | Bribe to get service? | | | Judges not involved in corruption | | |
| | Lawyers | Police Prosecutors | Civil Society | Lawyers | Police Prosecutors | Civil Society | Lawyers | Police Prosecutors | Civil Society |
| OnePager * 2019 | -0.06 | -0.04 | -0.04 | -0.03 | 0.02 | 0.01 | -0.04 | 0.04 | 0.18 |
| | (0.05) | (0.06) | (0.03) | (0.04) | (0.03) | (0.02) | (0.22) | (0.15) | (0.15) |
| OnePager_CUC * 2019 | -0.01 | -0.08 | 0.03 | -0.05 | -0.03 | -0.00 | -0.22 | 0.08 | -0.10 |
| | (0.05) | (0.06) | (0.03) | (0.04) | (0.03) | (0.02) | (0.18) | (0.15) | (0.16) |
| OnePager * 2015 | -0.02 | 0.09 | -0.01 | 0.20 | 0.11 | 0.13 | 0.41 | 0.13 | 0.34 |
| | (0.13) | (0.08) | (0.05) | (0.17) | (0.09) | (0.09) | (0.46) | (0.30) | (0.25) |
| OnePager_CUC * 2015 | -0.02 | 0.07 | 0.07 | 0.12 | 0.12 | 0.12 | 0.32 | 0.34 | 0.13 |
| | (0.10) | (0.08) | (0.05) | (0.17) | (0.09) | (0.09) | (0.46) | (0.29) | (0.23) |
| Observations | 1,847 | 1,862 | 9,211 | 1,803 | 1,762 | 8,841 | 1,420 | 1,515 | 7,215 |
| Court Station fixed effects | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Mean control group | 0.30 | 0.24 | 0.17 | 0.92 | 0.96 | 0.93 | 1.65 | 1.93 | 2.00 |
| SD control group | 0.46 | 0.43 | 0.37 | 0.27 | 0.20 | 0.25 | 0.91 | 0.90 | 0.92 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Columns (1) to (3), the question is "Have you ever made a complaint about court services?", Yes is 1 and No is 0. The sample is restricted to lawyers in Column (1), police/prosecutors in Column (2) and civil society (plaintiffs, defendants, relatives and witnesses) in Column (3). In Columns (4) to (6), the question is "Did you give a bribe/unofficial payment/any favour in order to get service?", where Yes is 1 and No is 0. In Columns (7) to (9), the question is "Judges/Magistrates/Kadhis are not involved in corruption", measured on a 4 point scale (Strongly Disagree, Disagree, Agree, Strongly Agree).

## Appendix J: Effects on Quality of Decisions

To increase speed, the OnePagers may have forced judges to close cases too quickly. We find no statistically significant evidence for this phenomenon in Table J1. In Column (1), the dependent variable is a dichotomous variable equal to 1 if the hearing ends in the case being either terminated, dismissed, struck out, or case closed; 0 otherwise. We find no significant effect of the interventions on this dimension.

Table J1—Effect on Quality

| | (1) Case Closed | (2) Appeal | (3) Convicted |
|---|---|---|---|
| OnePager * February 2019 | 0.0026 | 0.027 | 0.047 |
| | (0.0067) | (0.024) | (0.031) |
| OnePager CUC * February 2019 | -0.0019 | -0.011 | 0.011 |
| | (0.0057) | (0.024) | (0.0088) |
| OnePager * March 2019 | 0.0020 | 0.047 | 0.027** |
| | (0.0034) | (0.029) | (0.013) |
| OnePager CUC * March 2019 | -0.0015 | -0.0095 | 0.017 |
| | (0.0051) | (0.037) | (0.012) |
| OnePager * April 2019 | -0.0045 | 0.066 | 0.0079 |
| | (0.0040) | (0.051) | (0.011) |
| OnePager CUC * April 2019 | -0.0036 | -0.00031 | 0.020 |
| | (0.0079) | (0.031) | (0.014) |
| OnePager * May 2019 | -0.0023 | 0.011 | 0.015 |
| | (0.0037) | (0.037) | (0.013) |
| OnePager CUC * May 2019 | 0.0053 | -0.021 | 0.016 |
| | (0.0073) | (0.033) | (0.011) |
| OnePager * After June 2019 | -0.0018 | 0.016 | 0.015* |
| | (0.0041) | (0.048) | (0.0076) |
| OnePager CUC * After June 2019 | -0.0098 | 0.042 | 0.0064 |
| | (0.0061) | (0.039) | (0.010) |
| OnePager * Month Before | -0.0022 | 0.017 | 0.0037 |
| | (0.0051) | (0.036) | (0.012) |
| OnePager CUC * Month Before | -0.0087 | -0.00094 | 0.0061 |
| | (0.0059) | (0.037) | (0.011) |
| Observations | 9047041 | 1321777 | 9047041 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In column (1), the dependent variable is a dichotomous variable equal to 1 if the hearing ends in the case being either terminated, dismissed, struck out, or case closed; 0 otherwise. In Column (2), the dependent variable is a dichotomous variable equal to 1 if the case is an appeal, 0 otherwise. This is defined only in the High Courts, hence the smaller sample. In Column (3), the dependent variable is a dichotomous variable equal to 1 if the hearing ends in a conviction, 0 otherwise.

Column (2) shows the impact on the probability that a case is an appeal (in the High Courts).

This variable is a proxy for quality since lower quality decisions in Magistrate courts may lead to more appeals at the High Courts. There is no significant impact in February 2019.

Column (3) shows the impact on the probability of conviction. If cases are closed too early because of a desire to reduce delays, we might expect judges to rush their judgements and convict people too often. There is no effect of the OnePager_CUC intervention.

## Appendix K: Effects on Adjournments by Type of Criminal Case

Table K shows the effect on adjournments for criminal cases. We see no effect on violence cases, theft, disturbance, sexual, fraud, personal injury cases, an effect of OnePagerCUC on state regulations, drugs, political, and an effect of the OnePager intervention on immigration cases (with a violation of the pre-trend).

Table K1—Effect on Adjournments by Type of Criminal Case

| | (1) Violent | (2) Theft | (3) Immigration | (4) Disturbance | (5) Sexual | (6) Fraud | (7) State_Regulations | (8) Drugs | (9) Personal_injury | (10) Political |
|---|---|---|---|---|---|---|---|---|---|---|
| OnePager * February 2019 | -0.0039 | -0.0021 | -0.071** | 0.0097 | 0.0038 | 0.026 | -0.019 | -0.020 | 0.013 | -0.038 |
| | (0.021) | (0.018) | (0.035) | (0.019) | (0.016) | (0.025) | (0.013) | (0.021) | (0.024) | (0.029) |
| OnePager CUC * February 2019 | -0.025 | -0.038 | -0.032 | -0.00085 | -0.012 | -0.079 | -0.033** | -0.049** | 0.023 | -0.049** |
| | (0.021) | (0.026) | (0.044) | (0.016) | (0.018) | (0.063) | (0.015) | (0.023) | (0.016) | (0.024) |
| OnePager * March 2019 | 0.020 | 0.014 | -0.082*** | 0.046*** | 0.012 | 0.026 | -0.0037 | 0.016 | -0.0099 | 0.021 |
| | (0.020) | (0.021) | (0.029) | (0.017) | (0.020) | (0.028) | (0.020) | (0.030) | (0.019) | (0.020) |
| OnePager CUC * March 2019 | -0.0076 | -0.0026 | -0.058 | 0.041** | -0.017 | -0.039 | -0.0037 | -0.016 | -0.0050 | 0.014 |
| | (0.021) | (0.029) | (0.036) | (0.016) | (0.021) | (0.062) | (0.017) | (0.027) | (0.019) | (0.022) |
| OnePager * April 2019 | 0.015 | 0.0010 | -0.036 | -0.0017 | 0.0093 | -0.011 | -0.026 | 0.0055 | -0.0053 | -0.071 |
| | (0.023) | (0.021) | (0.026) | (0.024) | (0.025) | (0.026) | (0.020) | (0.024) | (0.021) | (0.054) |
| OnePager CUC * April 2019 | -0.016 | -0.020 | -0.026 | 0.0030 | -0.0098 | -0.081 | -0.052*** | 0.0059 | -0.00093 | -0.061 |
| | (0.024) | (0.028) | (0.038) | (0.021) | (0.024) | (0.068) | (0.019) | (0.026) | (0.016) | (0.054) |
| OnePager * May 2019 | 0.024 | 0.014 | -0.051** | 0.0027 | 0.024 | -0.0050 | 0.021 | -0.0095 | 0.022 | -0.0042 |
| | (0.026) | (0.026) | (0.024) | (0.026) | (0.025) | (0.028) | (0.022) | (0.032) | (0.026) | (0.028) |
| OnePager CUC * May 2019 | -0.027 | -0.018 | 0.062 | -0.0037 | 0.017 | -0.083 | 0.0095 | -0.0061 | 0.0089 | -0.021 |
| | (0.027) | (0.029) | (0.046) | (0.026) | (0.029) | (0.058) | (0.020) | (0.034) | (0.014) | (0.028) |
| OnePager * After June 2019 | 0.010 | -0.0062 | -0.034 | 0.019 | 0.0046 | -0.0011 | -0.012 | -0.034 | 0.00049 | -0.037* |
| | (0.022) | (0.021) | (0.024) | (0.013) | (0.019) | (0.029) | (0.0095) | (0.022) | (0.014) | (0.021) |
| OnePager CUC * After June 2019 | -0.015 | -0.023 | -0.0063 | -0.0047 | -0.0061 | -0.11 | -0.029 | -0.019 | 0.012 | 0.026 |
| | (0.023) | (0.030) | (0.033) | (0.014) | (0.019) | (0.072) | (0.018) | (0.022) | (0.013) | (0.017) |
| OnePager * Month Before | 0.0084 | -0.0058 | -0.11** | 0.016 | -0.024 | -0.0046 | -0.00017 | -0.0055 | 0.018 | 0.083 |
| | (0.021) | (0.015) | (0.049) | (0.017) | (0.017) | (0.031) | (0.015) | (0.022) | (0.020) | (0.071) |
| OnePager CUC * Month Before | 0.0049 | -0.0016 | -0.10** | 0.0087 | -0.019 | -0.11*** | 0.013 | 0.00076 | -0.012 | 0.030 |
| | (0.025) | (0.017) | (0.048) | (0.020) | (0.020) | (0.040) | (0.015) | (0.026) | (0.017) | (0.027) |
| Observations | 1014995 | 1274130 | 20886 | 144091 | 412769 | 119991 | 662975 | 212529 | 851941 | 89804 |

*Note:* Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In all columns, the dependent variable is a dichotomous variable equal to 1 if a hearing ends in adjournment, 0 otherwise. The sample is restricted to cases of violence in Column (1), theft in Column (2), immigration in Column (3), disturbance in Column (4), sexual in Column (5), fraud in Column (6), state regulations in Column (7), drugs in Column (8), personal injury in Column (9), political cases in Column (10).

## Appendix L: Decomposition of the Wage Effect

Column (1) replicates the effect on wage, from Column (7) of Table 9. When we include the contract variable as an additional regressor in Column (2), the coefficient OnePager sent to CUC drops dramatically. This lets on the idea that the effect on wage is partially due to this mechanism. Indeed, individuals with a written contract are paid more, significantly so (by a coefficient of 333 in Column (2)).

The intervention increases the probability to have a written contract by 4 percentage points as can be seen in Column (3), which themselves increase wages by 333. Thus, the intervention increase wages by 0.04*333=13.32 USD by that channel. This effect is significant at the 10 percent level.

This represents (Indirect effect = 13.32 / (Direct Effect = 66.68 + Indirect effect = 13.32) = 17 percent of the total effect. Therefore, 17 percent of the increase in wages is due to the higher prevalence of written contracts.

Table L1—Decomposition of the Effect on Wages

| | (1) | (2) | (3) |
|---|---|---|---|
| VARIABLES | Wage | Wage | Contract |
| Frac. OnePager * Post | 58.50 | 39.47 | 0.03 |
| | (36.98) | (31.45) | (0.02) |
| Frac. OnePagerCUC * Post | 98.37** | 66.58** | 0.04* |
| | (41.77) | (31.99) | (0.02) |
| Contract | | 332.96*** | |
| | | (12.48) | |
| Constant | 357.06*** | 203.45*** | 0.36*** |
| | (8.14) | (8.78) | (0.00) |
| Observations | 7,457 | 7,283 | 35,078 |
| R-squared | 0.065 | 0.324 | 0.045 |
| County fixed effects | YES | YES | YES |
| Quarter FE | YES | YES | YES |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

*Note:* Robust standard errors, clustered at the level of the county. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. The variable "Frac. OnePager" is the fraction of court stations in a county that received the One-Pagers. The variable "Post" is equal to 1 in the quarters 2, 3, and 4, and equal to 0 in quarter 1.

As a robustness check, we also use the sequential g-estimator and find that the proportion mediated is 22 percent, very similar to the decomposition exercise above.

## Appendix M: Falsification Exercise with Wages of Teachers

Wages of teachers are set nationally in Kenya. Thus, these wages should not differ in the treatment group versus control group . This is what we find in Table M1. We use various definitions of teachers. In Column (1), we define an individual as a teacher if their Kenya National Occupational Classification Standard (KNOCS) corresponds to code 250: Teaching Professionals (see the table footnotes for the exact definition). There are no differences between the control group and the OnePager or OnePager_CUC treatment groups, as expected.

In Column (2), we adopt a more restrictive definition to focus solely on primary and secondary school teachers (KNOCS codes 252 and 371).

In Column (3), we use the International Standard Industrial Classification Revision 4 (ISIC Rev 4) instead of the KNOCS to define teachers. In Column (4), we adopt a more restrictive definition to focus solely on primary and secondary school teachers (ISIC4 codes 851, 8510, 852, 8521).

Not all teachers are in the public sector. In Column (5), we use an entirely different question (Who was the main employer for primary job / business? Code 5: Teachers Service Commission).

All of these tests show no significant differences between the control group and the OnePager or OnePager_CUC treatment groups. This is as expected since teachers wages are set nationally and should thus not vary across geographical areas.

Table M1—Wages of Teachers

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Definition of Teacher: | KNOCS | KNOCS Reduced | ISIC4 | ISIC4 Reduced | TSC |
| Frac. OnePager * Post | 63.86 | 98.67 | 83.38 | 67.42 | 107.86 |
| | (77.62) | (78.00) | (69.71) | (70.86) | (93.71) |
| Frac. OnePagerCUC * Post | 55.65 | -14.71 | 26.84 | 15.43 | 44.25 |
| | (102.08) | (102.26) | (100.52) | (101.72) | (107.25) |
| Observations | 771 | 612 | 988 | 918 | 417 |
| County fixed effects | YES | YES | YES | YES | YES |
| Quarter FE | YES | YES | YES | YES | YES |
| Mean control group | 483.8 | 527.2 | 419.3 | 420.7 | 671.5 |
| SD control group | 360.9 | 366.3 | 352.4 | 354.4 | 349.8 |

*Note:* Robust standard errors, clustered at the county level. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. In Column (1), we restrict the sample to teachers defined as such if their Kenya National Occupational Classification Standard (KNOCS) is: 250: Teaching Professionals, 251: University and Post-Secondary Teachers/Lecturers, 252: Secondary and Technical Institute Teachers and Instructors, 253: Special Education Teaching Professionals, 254: Education Methods Advisers and Assessors, 259: Other Teaching Professionals, 370: Primary and Pre-primary education and Other Teachers, 371: Primary Education Teachers, 372: Pre-primary Education Teachers, 373: Other Teachers and Instructors. Column (1) restricts the sample to these individuals only. In Column (2), we restrict the sample to primary and secondary school teachers (KNOCS 252 and 371). In Column (3), we define an individual as a teacher if their ISIC4 codes are: 85 Education, 851 8510 Pre-primary and primary education, 852 Secondary education, 8521 General secondary education, 8522 Technical and vocational secondary education Higher education, 853 8530 Higher education, 854 Other education, 8541 Sports and recreation education, 8542 Cultural education, 8549 Other education n.e.c., 855 8550 Educational support activities. In Column (4), we adopt a more restrictive definition to focus solely on primary and secondary school teachers (ISIC4 codes 851, 8510, 852, 8521). In Column (5), we use an entirely different question (Who was the main employer for primary job / business? Code 5: Teachers Service Commission). The variable "Frac. OnePager" is the fraction of court stations in a county that received the One-Pagers.