Building Courts:

Effects on Access to Justice and Economic Development

By Matthieu Chemin*, Daniel L. Chen†, Paul Kimalu‡, Manuel Ramos-Maqueda§

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This paper assesses the impact of Africa's largest court construction program on access to justice and economic activity in Kenya. Exploiting exogenous delays in court completion, we identify substantial effects of new courts on judicial utilization and economic outcomes. Court usage doubled, particularly in civil, commercial, succession, and property cases—critical for contract enforcement and property rights. This expansion increased firm investment by 37%, especially in contract-intensive sectors, and raised private dwelling ownership by 3.5 percentage points. Our findings underscore the vital role of judicial infrastructure in economic development, improving access to justice and property rights in under-resourced settings.

* Department of Economics, McGill University; Cireq, Canada; and Cirano, Canada. E-mail: matthieu.chemin@mcgill.ca.

† daniel.chen@iast.fr, JD, PhD, Lead Principal Investigator, Data and Evidence for Justice Reform (DE JURE), Directeur de Recherche, Centre National de la Recherche Scientifique (CNRS) Professor, Toulouse School of Economics, Professor, Institute for Advanced Study in Toulouse.

‡ Director, Planning and Organizational Performance Directorate, Judiciary of Kenya. E-mail: paul.kimalu@court.go.ke

§ Development Impact Evaluation (DIME), World Bank; Blavatnik School of Government, University of Oxford. E-mail: mramosmaqueda@worldbank.org

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"We found an institution so frail in its structures, so thin on resources, so low on its confidence, so deficient in integrity, so weak in its public support that to have expected it to deliver justice was to be wildly optimistic." Kenya's Chief Justice Mutunga speech "First Hundred and Twenty Days". 19th October, 2011.

A substantial body of literature underscores the importance of contracting and property rights institutions for economic development (North, 1990; Acemoglu and Robinson, 2013; Mehmood, 2022; Rao, 2022; Lichand and Soares, 2014; Ponticelli and Alencar, 2016; Visaria, 2009; Aberra and Chemin, 2021). Central to the functioning of these institutions is the justice system. The judiciary not only enforces contracts but also safeguards the rule of law and curbs potential abuses of power by the Executive. These measures, in turn, promote trade, bolster contracts between firms, and shield investments and property rights from expropriation.

Despite the importance of justice systems in development, a crucial question remains. How can justice institutions be improved? Judicial systems are often slow-moving, resistant to reform, and susceptible to Executive influence, particularly in weaker democracies. As such, large-scale judicial reforms are rare and hard to empirically evaluate. An important debate in this literature is whether increasing resources, such as building courts or expanding the number of judges, actually contributes to improving the efficiency of justice and spurring economic growth. Botero et al. (2003) argue that "more resources will probably not solve the problem" of judicial inefficiencies. More recent empirical evidence has shown that specific judicial reforms or access to specialized tribunals can be valued by firms and remove barriers to economic growth (Kondylis and Stein, 2023; Aberra and Chemin, 2021; Lichand and Soares, 2014; Visaria, 2009). However, there is no rigorous evidence on whether the expansion of regular courts and judicial capacity matters for court performance and development.

In this paper, we study the largest court construction program in Sub-Saharan Africa to date to evaluate the impact of building courts on access to justice and economic development. Our focus is on Kenya, a nation that, after undergoing constitutional reform, initiated an ambitious program to increase its court presence in every one of its counties. Supported by a $120 million grant from the World Bank's Judicial Performance Improvement Project (JPIP), the primary aim was to expand the reach and presence of the judiciary across the nation.

To evaluate the impact of this program, we leverage a natural experiment, comparing regions where courts where built with those where courts were delayed due to arguably exogenous factors. About half of the courts in Kenya were delayed by unforeseen and arguably exogenous factors such as extreme weather conditions and contractor challenges. In line with the exogeneity of delays,

the treatment and control groups are on parallel trends prior to the construction of the program, thus enabling us to evaluate the causal impact of the new court program on access to justice and economic development through a difference-in-difference strategy. The completed courts were finished at varying times, creating a standard staggered introduction setting. We employ the latest corrections proposed by the literature for such a setting (Gardner, 2021; Borusyak et al., 2022) and present additional robustness checks, including Fisher tests (Young, 2018) and wild cluster bootstrap (Cameron et al., 2008; Webb, 2014) . Our findings remain robust across these tests.

We first find substantial effects of the new courts on access to justice. A year after the completion of a court, our findings reveal a doubling of cases filed, demonstrating the local population's increased utilization of these new facilities. We also find that less-educated citizens are now more likely to use the courts, thus expanding access to justice for people from lower socioeconomic backgrounds. Notably, we observe a surge in civil and commercial cases, relevant to contract enforcement, as well as succession cases, which are essential to securing property rights and investments as they facilitate property title transfers to descendants. On the other hand, we detect a less pronounced impact on criminal cases, with the exception of property-related cases like theft and burglary, further emphasizing the increased protection against property rights violations.

Despite the increased case filings, we find no evidence of court congestion, as the new courts were accompanied by additional judges. These judges were not pulled from the control group, but were new judges hired by the Kenyan judiciary. In a horse race between the new courts and the new judges, we find that both factors matter. Thus, the new courts continue to have an effect over and above having new judges. These new courts and new judges combine to decrease the time it takes to resolve a case. We also find a heightened satisfaction with the new court buildings in user surveys.

The benefits of these new courts extend beyond their immediate users and permeate the wider economy. By combining firm surveys and GPS data, we ascertain that firms located near newly completed courts exhibit a more favorable perception of courts compared to those in the control group, situated near courts yet to be completed.

Taking these effects into account, we further investigate investment patterns by firms. We find a 37 percent increase in investment for firms situated nearby courts. We then specifically distinguish between contract-intensive and non-contract-intensive sectors. Certain industries inherently necessitate a higher volume of contracts for technological reasons. Following existing literature (Nunn, 2007), we classify economic sectors based on their propensity to utilize contracts. Our findings reveal that firms in contract-intensive sectors exhibit a substantial increase in investment, nearly

doubling it, consistent with quantitative estimates from our model that links the observed doubling of cases filed to investment. In essence, firms operating in contract-intensive sectors that rely on the presence of courts derive disproportionate benefits from the court construction program. Thus, we find that the new courts are particularly relevant to boost investment through improved contract enforcement.

In addition to the aforementioned effects, our study uncovers other consequential benefits on the property rights of citizens nearby the new courts. Along with the observed increase in filed succession cases, we identify a rise in private dwelling ownership reported in household surveys of 3.5 percentage points relative to a baseline of 71%. This finding aligns with the notion that succession proceedings contribute to the issuance of property titles, further emphasizing the significance of an effective legal system in fostering economic development through better property rights (Field, 2007; Goldstein et al., 2018).

Thus, we find that expanding the infrastructure and human capacity of courts matters for economic development, mostly through increased contract enforcement for contractive-intensive industries, but also through improved property rights. These results are quantitatively large. According to our estimates, we find that firms respond by investing more than the costs of this program. We benchmark the effect of new courts with firms' perceptions of the importance of other well-known factors affecting the investment climate. Ranked by order of importance these factors include tax rates, practices of competitors in the informal sector, corruption, electricity, access to finance, tax administrations, business licensing and permits, crime, theft and disorder, labor regulations, inadequately educated workforce. The effect of new courts dwarf all these other factors in explaining firm investment.

Our paper is the first to empirically evaluate the impact of a major court construction program on economic activity. Prior literature has aimed to look at the impact of new courts on court usage and conflict (Andrade et al., 2010), or the effect of removing courts on litigation and case duration (Espinosa et al., 2017). Other papers have evaluated the effects of specialized courts, identifying impacts on entrepreneurship from specialized civil courts (Lichand and Soares, 2014) or the cost of credit from debt recovery tribunals (Visaria, 2009). Instead, we focus on the impact of a judicial reform that expanded the presence of regular courts throughout the country in the largest court construction program in Sub-Saharan Africa. We contribute to this literature by finding important economic effects through improved contract enforcement and property rights.

We also contribute to an important literature on how to improve court performance in underresourced settings. Earlier literature questions the efficacy of pouring resources into potentially flawed

or overly intricate judicial institutions (Botero et al., 2003). Despite this, we find that, in the case of Kenya, increased resources (through physical infrastructure and judges) led to increased accessibility and efficiency of the judiciary. Furthermore, the results find substantial impacts on economic activity. This is consistent with the caveat in Botero et al. (2003), according to which, in contexts of extreme underfunding, increasing resources can contribute to improved performance. Kenya exemplifies such a context, characterized by a judiciary often sidelined by financial constraints and undermined by the Executive (Gainer, 2015; Kemboi, 2021).[1] Thus, our results indicate the potential of large-scale judicial reforms for economic activity in a country that had historically undermined the Judiciary.

Finally, we further contribute to the highly contested debate in economics as to whether judicial reforms predominantly affect economic development through the protection of property rights or through contract enforcement (Nunn, 2007; Acemoglu and Johnson, 2005). Despite the ample literature on the topic, the nature of judicial institutions, which are slow-moving and hard to reform, and the historical lack of data on judicial cases, has posed difficulties in rigorously answering this question. In this paper, we study the largest court construction program to empirically evaluate whether expanding court presence affects development through either contract enforcement, property rights, or both mechanisms. We find evidence that new courts have substantial impacts on both, although the impact on contract-intensive sectors drives the majority of the economic effects.

The rest of the paper is organized as follows. Section I describes the court building program and the identification strategy based on construction delays. Section II presents a conceptual framework for the role of courts in resolving disputes and affecting the incentives to invest. Section III presents the data and section IV the empirical methodology. Section V discusses the results, while section VI concludes.

I. The Court Building Program

The Judicial Performance Improvement Project (JPIP) supported by the World Bank began in 2012, with an estimated duration of six years and a total budget of USD 120 million. This judicial reform was structured around three major components: increasing access to courts and legal information, improving the timeliness of judiciary services, and enhancing performance and quality of decision making. USD 45.5 million was devoted to the construction of new court buildings.[2]

[1] Kenya judiciary complain of budget cuts (https://apnews.com/article/e604c1af743140dab9e8c8369f4fa955). "The budget cuts come after President Uhuru Kenyatta called the judiciary a bunch of crooks and promised to "fix" them after the Supreme Court nullified his election in 2017".

[2] Disclosable Version of the ISR Judicial Performance Improvement (P105269), sequence num. 12.

A. *The New Courts*

These new courts intend to address several of the historic and infrastructure-related issues of courts in the country, "including the shortage of courts, building deterioration".[3] "Courts were extremely dilapidated and condemned due to huge cracks on the walls and as such they were demolished and constructed as new".[4]

Before 2010, the judiciary suffered from prolonged neglect, coupled with severe underinvestment (Gainer, 2015). The judiciary now stands as an independent arm of the state, but was formerly merely a department within the Office of the Attorney General. The conditions of certain judicial buildings were in such a poor state that they could only be described as deplorable.[5] For example, the previous Makindu court was built by the community with support by a non governmental organization where the community provided labour in exchange of food from the NGO. In stark contrast, public funds were earmarked and used for the construction of hospitals, roads, schools, parastatals, and other establishments.

The court building program consisted in building new courts on the site of existing ones.[6] "The new court buildings provide a conducive and dignified space for both staff and court users including members of the public and those incarcerated. The buildings have ICT infrastructure incorporated, spacious court rooms, secure registries, separate cells for men, women and juveniles, customer waiting areas and service bays, consultation rooms for advocates and clients, lactating rooms for staff and public, ramps for physically challenged persons. The Project has also purchased furniture for all the new courts."[7] The new courts have greater internet connectivity.[8]

Figure 1 shows the old court on the left and the new court on the right, in various locations. The new buildings are significantly larger and more modern. The Kenyan judiciary fittingly called this initiative a "judicial transformation". Considering the large budget and great changes in courts, it

[3] p. 22, Project Information Document (Appraisal Stage) - Judicial Performance Improvement - P105269

[4] p.11, Draft Implementation Completion Report - JPIP_Fin 13.10

[5] Information gathered from interviews with the JPIP team.

[6] In few cases, a court was built in a location where there had not been any before or a new court type was established (e.g. high court) in that location (not just a brand new building). We do not consider these few cases in our analysis since there is no data for them before they are built. In this paper, we focus on the large majority of courts that existed before they were constructed as new, with data available before and after the treatment.

[7] p.9, Draft Implementation Completion Report - JPIP_Fin 13.10

[8] "The project supported increased efficiency through internet connectivity in all the courts constructed, with a Local Area Network (LAN). LAN is a backbone communication network for all online services that allows the public to be served better. In particular it ensures convenient communication to members of the public (using LAN enables users to exchange messages and data in a convenient way. Since the data is placed on the server it can be accessed anytime by the LAN users. Hence, this not only saves lots of time, it ensures that messages get delivered to the right people. LAN also ensures centralization of data (i.e., data of the users are located at a centralized server) therefore any workstation serving the public in a particular network can be used to access this information. Moreover, users can access their own set of data by logging into their respective accounts. LAN also ensures improved security for members of public documents. Since data is stored on a local server, it is guaranteed to be secure. If the data on the server is updated then simply all the LAN users can access them. In addition to that, the host has the capability to deny or allow users in a particular network so that additional security measurements can be imposed. It also allows for computer identification and therefore if a particular user tempers with member of public document s/he can easily be traced." (p.13, Draft Implementation Completion Report - JPIP_Fin 13.10).

is important to verify the effect on the functioning of courts as well as the response by the local population. Figures A1 and A2 in Appendix A show other pictures of new courts.

B. Identification strategy: Construction Delays

Sites were selected to receive new courts for a host of reasons, including backlog, region, number of people served around a proposed court, title of land to build the new court, number of cases, state of the courts, whether buildings were dilapidated or whether some could be salvaged. More subjective factors involved negotiations between the Kenyan judiciary and the World Bank.[9] These sites were thus not chosen randomly. It would be inappropriate to compare them to other sites that were not chosen to receive a court under the program. For example, it may be that the chosen sites are growing economically for other reasons. Comparing these sites to others may merely pick up this growing trend, overestimating the causal impact of the new courts.

Rather, our identification strategy is based on construction delays that happened on some sites but not others, due to plausibly exogenous reasons. Our analysis thus compares sites selected and where a court was built to other sites also selected but where the construction was delayed. Both were selected but some sites received courts while others did not. Comparing them removes the bias due to selection into treatment. The only difference between the treatment and control group is due to exogenous construction delays, such that we can measure the causal impact of building a court.

The construction of courts began in 2014. Most projects started in 2016 or 2017. As of March 2021, only 16 courts are completed. The construction of 13 other courts started but remained unfinished. Figure 2 shows where the courts were built. The solid points show where the courts were completed, and at what date. The unshaded points show where the courts are not completed yet. This map shows no obvious difference in the locations of the completed or not yet completed courts. For example, it is not the case that not yet completed courts are all in far-away, rural places difficult to reach. Some uncompleted projects are in remote areas (Wajir or Garissa) and areas close to large urban centers (Nairobi, Mombasa or Kisumu). Some completed projects are in remote areas (Isiolo). Overall, this map shows no distinct geographic patterns, which is reassuring for the comparison of the treatment and control group.

Table 1 explains in detail for each and every court the reasons for delay. First, some courts experienced adverse weather conditions in crucial years of the construction process. For example, our first example in Table 1, Wajir court experienced heavy rains in 2018. This delayed the

[9]Information gathered from interviews with the JPIP team.

Figure 1. Courts Before (Left) and After (Right)

BEFORE AFTER

Isiolo





Kakamega



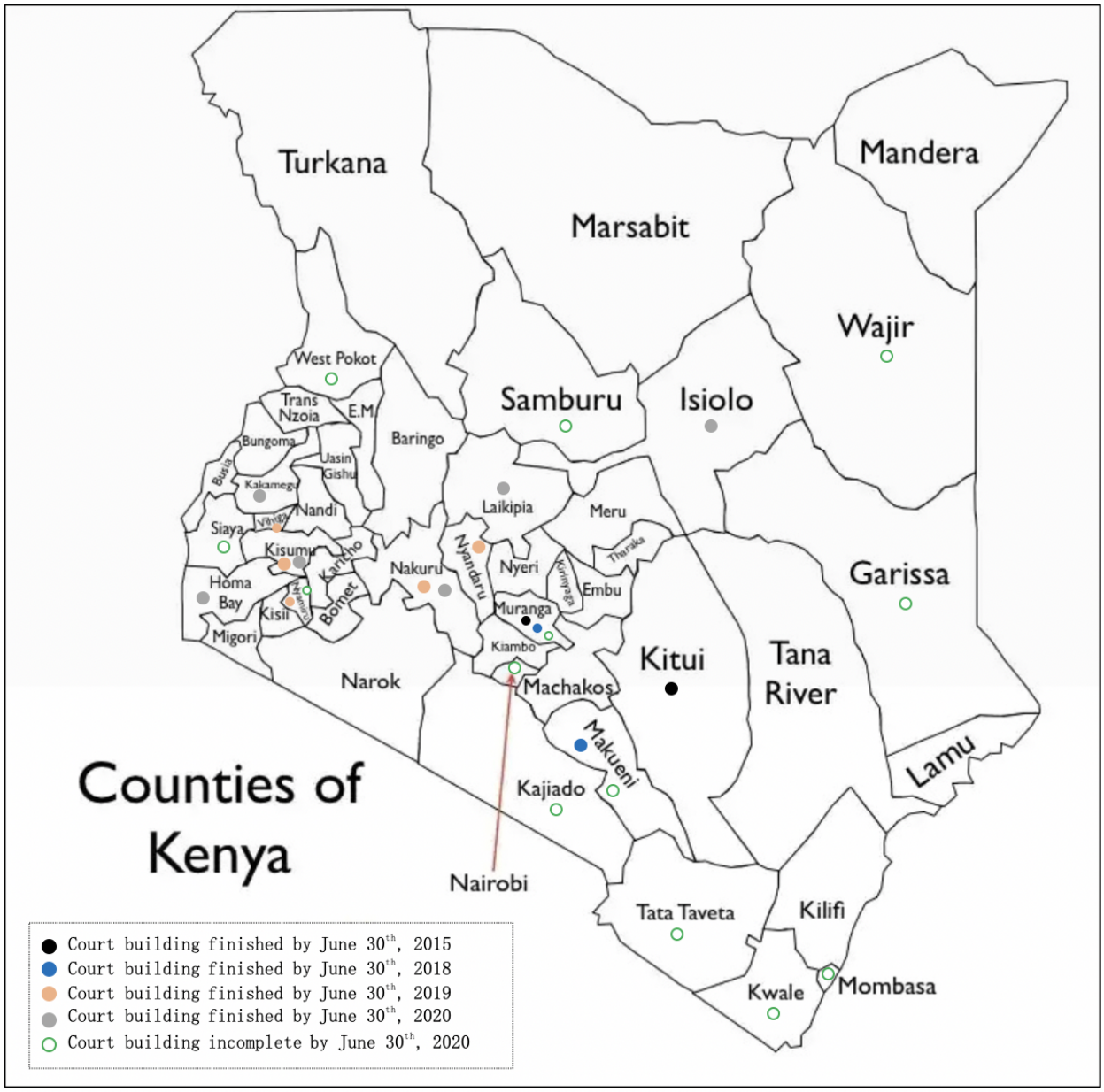


Chuka





Figure 2. Map of the construction of court buildings across Kenya



Note: Except for Chuka, Oyugis, & Nakuru court buildings, information on the Completion Dates and Progress of the construction projects come from "Report of the Auditor-General on the Financial Statements of the Judicial Performance Improvement Project for the year ended 30 June 2015: pg. iii," "Report of the Auditor-General ... for year ended 30 June 2018: pg. 13," "Report of the Auditor-General ... for year ended 30 June 2019: pg. iv," & "Report of the Auditor-General ... for year ended 30 June 2020: pg. iv." In the case of these three court buildings, where Completion Date is not available, we take Official Opening Date according to JPIP Facebook page: https://www.facebook.com/JPIPKenya as a reference.

delivery of materials. These weather shocks are localized and idiosyncratic, occurring on the specific construction site at specific crucial steps of the construction process, and as such can be considered plausibly exogenous. Of course, it is possible that these weather shocks also affect the local economy in the vicinity. For example, weather shocks may affect the agricultural sector, heavily dependent on rainfall. In our empirical analysis below, we focus on firms in the manufacturing sector, not the agricultural sector. Moreover, we measure the effect on the economy after the courts are completed, i.e., long after these weather shocks have occurred during the construction process.

Second, in some courts, it was discovered after later analysis that the ground was unsuitable for construction. For example, the ground turned out to be too weak and strong foundations had to be built, which significantly delayed some courts. These delays are due to local ground conditions on the site of the courts and are not related in any way with wider characteristics of the local economy.

Third, in yet other courts, the project was delayed by idiosyncratic events related to the contractor. In one project, one partner left, delaying the entire project. In other projects, the contractor fell ill for a year or the wife of the contractor died. In some projects, the construction site was too small, preventing materials to be stored. In one project, tenants had to be resettled before construction could start. These delays are due to the contractor or construction site, not related to the wider economy.

Fourth, in some projects, the contractors had limited financial capacity to advance funds. In a World Bank project, only completed work can be remunerated. Some contractors could simply not do the work first without being paid. It is important to stress that ex-ante, all the contractors met the bid requirements. Procurement reviews were undertaken and none said that any contractor was irregularly or un-procedurally awarded a contract for which their financial capacity did not match. There was thus no way for the World Bank to anticipate these problems.

The reasons for delays are not related to corruption. There were several audits and financial reviews of the Project and none came to a conclusion of corruption in relation to any contractor /construction project.[10] In one project, there was no corruption but "the contractor did not reinvest the project money into the contract".[11] It resulted in his breaching of his contract obligations hence why he was terminated.

Tables B1, B2, and B3 in Appendix B present in detail the other reasons for delays for all courts.

In the rest of the paper, we consider these delays as plausibly exogenous and compare the treatment group of courts completed versus the control group of courts not completed yet. In the next section, we present a simplified conceptual framework which highlights what the effects of these

[10]Information from interviews with the JPIP team.
[11]Information from interviews with the JPIP team.

Table 1—Causes of delays

Court	Reason for Delay	Source
Wajir	Adverse weather conditions (heavy rains) in 2018 delayed the delivery of materials, in this remote area far from Nairobi. Furthermore, the contractor had a limited financial capacity, and consequently, had to rely on the release of funds from the exchequer to complete the project. BSU (Building Services Unit) put forth a proposal of termination, however, the contractor asserted that they would deliver, trying as much as possible to subcontract the remaining work to expedite the process and complete the project.	2017/18 JPIP WorkplanMeeting with the JPIP team (May 25th, 2021).
Garissa	Unsuitable ground conditions in 2017. The foundation had to be changed from strip to raft foundation (a stronger foundation consisting of a concrete slab that extends over the entire loaded area to reduce the stress of larger loads). The contractors finished around 70% of the work, pouring in 40 million Kenya shillings into that change and indicated that they could not continue work until they were paid for this amount. It took time to resolve this issue, delaying the construction process, because the consultants did not have documentation demonstrating the extra costs required for the foundation.	Status report of projects funded by GoK: July 2018
Siaya	Project delayed by management and organizational issues of the contractor. One of the partners pulled out during the construction process and the partner left constructing the court faced financial challenges.	2016-17 JPIP WORKPLAN 6.6.2016
Voi	The contractor faced constraints due to the inadequate size of the construction site. Construction of the new court building was taking place on a very small plot that also held an existing court. The demolition of the existing court building on the site delayed the construction of certain parts of the new building. Furthermore, the demolition increased the costs for the contractor, which resulted in disagreement between the parties. As such, when the court building was around 70% complete, the contractor wanted to halt construction at that particular phase. Resultantly, construction was paralyzed for a year.	2016/17 JPIP WorkplanMeeting with the JPIP team (May 25th, 2021).
Mombasa	Due to its limited financial capacity, the contractor could not complete this project with its own resources. As a result, it had to rely on the release of funds from the exchequer. Contractor's inability to submit a valid performance bond delayed this process even further. It took the contractors more than 6 months to submit a valid performance bond. No payment can be made until a valid performance bond is obtained, thus, this held up their receipt of JPIP funds necessary for them to continue construction. Additionally, the contractor used very few workers on site.	2018/19 JPIP WorkplanMeeting with the JPIP team (May 25th, 2021).
Kibera	The amount of work completed by the contractor was not in tandem with the funds that the JPIP has been funneling into the project, suggesting that the contractor might not have been channeling all of these resources into the project. Problematic to all projects, but a particular hinderance in this instance, the Building Service unit (BSU), responsible for carrying out due diligence in contractor selection, was, initially, not adequately staffed. The contractor could have be terminated early on, yet the BSU wanted to give the contractor another chance, which hindered their ability to terminate. The JPIP eventually terminated the contractor.	2016-17 JPIP WORKPLAN 6.6.2016

new courts may be. We will use this simplified model to predict the effect of building courts and compare it to the effects found in the empirical analysis.

II. Conceptual framework

Suppose a firm contracts with a supplier to produce a customized good. Once the supplier has sunk the investment costs to produce the customized good, the buyer can renegotiate prices down. The supplier can sue in court, but typically recovers only a fraction, the net present value of which ever decreases with court delay.–

In a stylized model, Boehm and Oberfield (2020) propose that parties to a contract can exert effort to ensure that contracts are upheld. Supplier exerts effort $e \in [0, 1]$, which yields output A with prob $\sqrt{e}$. With court delay, the production function becomes: $(p\beta^T - l)A\sqrt{e} - e$.

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

Courts thus act as technology for production. Fast or slow courts augment or depress productivity.

The simplest way to understand the potential economic effects of courts is to consider the problem of a relationship-specific investment. Consider a buyer asking a seller to produce a customized good. The seller 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 $A\sqrt{e}$. One could also interpret e as capital stock in a firm with a more flexible production function of the customized good. In Appendix C, we calibrate and simulate a more flexible production function yet we keep the simple version in the paper for tractability. 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 $e^* = \left[\frac{A}{2}\right]^2$.

The fundamental problem is that once this effort level has been sunk and output has been produced, the buyer can renegotiate prices down and offer a minimal amount $\varepsilon > 0$. Since there are no other buyers for this customized good, the seller agrees. Anticipating this, the seller does not exert effort.

This outcome is inefficient, since any amount offered greater than ε would be pareto-efficient: the seller would exert more effort, and the buyer would get more of the customized good. But the

fundamental issue is that the buyer cannot credibly commit to respect the contract.

A solution is efficient third-party contract enforcement that upholds contracts. The intuition is that, depending on the characteristics of the judiciary, the seller will sue, and this might deter buyers from deviating in the first place. The buyer can now credibly commit to an agreed-upon price, which leads to the optimal level of effort.

In quantitative terms, if the buyer renegotiates prices down and offers ε close to zero, the seller can sue for the amount of the deviation, i.e., $A\sqrt{e^*}$, also equal to $\frac{A^2}{2}$.

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. p is less than 1, since despite the clear-cut case in favor of the seller, the seller is never fully certain whether he/she will win the case. With probability p, the seller wins the case and enforces the payment of $\frac{A^2}{2}$ at time T. If the seller's discount factor is β, the net present value is $\beta^T \frac{A^2}{2}$. With probability $1-p$, the seller loses the case, and gets nothing.

The seller also incurs some costs to file a case in court (going to court, spending time in court, lawyer fees, court fees, enforcement costs), equal to a proportion c of the value of the case $\frac{A^2}{2}$, i.e., total legal fees of $c\frac{A^2}{2}$.

Overall, the payoff from suing is $p\beta^T \frac{A^2}{2} - c\frac{A^2}{2}$. The seller sues if and only if:

$$p\beta^T \geq c \tag{1}$$

This represents the incentives to sue. The greater is $p\beta^T - c$, the greater are the incentives to sue and the fraction of output recovered.

We can make a link between these incentives to sue and investment. If the seller sues, the surplus is $(p\beta^T - c)A\sqrt{e} - e$. The optimal effort maximizing this is $\left(\frac{(p\beta^T - c)A}{2}\right)^2$.

We can use this to understand the effects of the court building program. First, the costs to sue c may be reduced if courts are better, safer, cleaner and easier to navigate (as we will show in the empirical analysis). The new courts may also be more efficient (with more judges and ICT), such that T could also be affected. If c decreases and T decreases, this will improve the incentives to file a case, as shown in specification 1. According to this framework, this will translate into increased effort e, which can be broadly construed as investment.

The buyer will respond strategically to this increased threat of suing by renegotiating less in the first place. He/she can renegotiate prices down to the minimum acceptable value for the seller, $(p\beta^T - c)\frac{A^2}{2}$, below which the seller goes to court. This new price is acceptable to the buyer since in court, he/she would have to pay $(p\beta^T + c_d)\frac{A^2}{2}$ (where c_d are the costs of going to court for a

defendant d), more than the price paid out of court $(p\beta^T - c)\frac{A^2}{2}$. Therefore, the buyer offers the new price $(p\beta^T - c)\frac{A^2}{2}$ and the seller accepts. Notice that there are no cases going to court in this simplistic model. In Appendix C, we develop a more realistic model with information asymmetries between buyers and sellers, able to generate cases filed in court. The prediction of that model is that reducing the costs $c$of going to court increases the number of cases filed in court (since both the buyer and sellers are more willing to go to court).

The important conclusion of both the simple conceptual framework above and the more sophisticated model in the appendix is that a reduction in the costs $c$of going to court improves the bargaining position of the seller in the hold-up problem: the seller now gets $(p\beta^T - c)\frac{A^2}{2}$ for his customized good. This increases the incentives to invest.

Recall that this entire reasoning is true only in sectors with relationship-specific investments. In other sectors, goods are not specific but generic, and if a buyer attempts to renegotiate prices down, there are other numerous buyers interested in the generic good. This generates a testable implication: we should see disproportionate effects on investment in firms requiring more relationship-specific investments for their operation.

In the next section, we present the data that will be used to test these predictions.

III. Data

We use administrative data collected by the Kenyan judiciary on every case going through the courts every day in Kenya (called the Daily Court return Template, DCRT), with a total sample size of N=9,052,199 observations from October 2015 to March 2021).

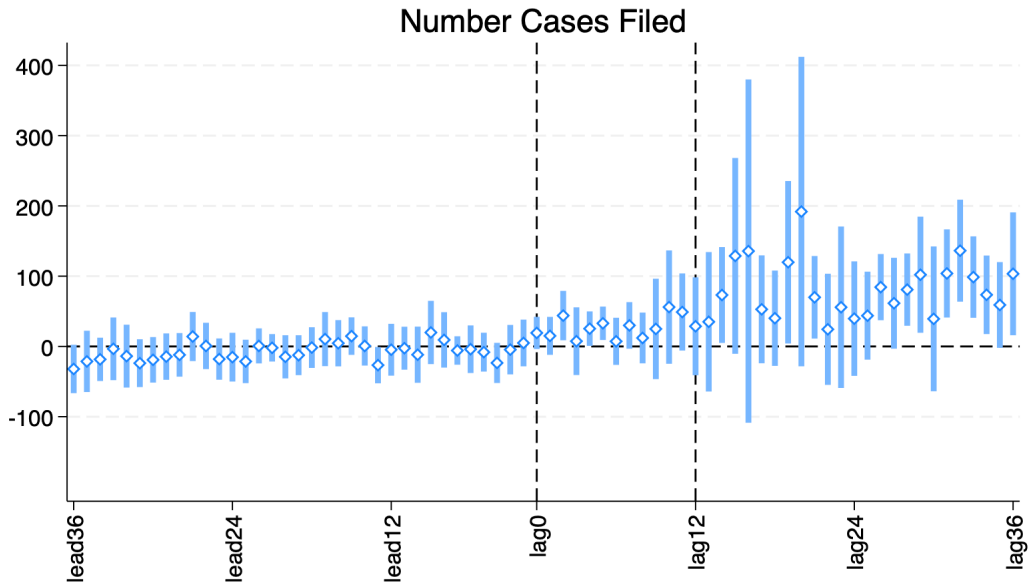
Some courts were completed at different times and some courts never got completed (as of March 2021). To show the data in a visually appealing way, we present an event study. We regress the number of cases filed per month in every court on leads and lags (month dummies) 3 years before and after the court is built and plot the resulting coefficients in Figure 3.[12] Recall that the dataset is restricted to the planned courts, either built or with delays.

The figure clearly shows that the leads are not significant before the courts are built. This confirms the parallel trends assumption: the number of cases filed is similar in treated or control courts before the courts are built.

The lags are still quite close to zero in the year immediately after the court is built. Thus, the effect of building a court on cases filed is not immediate. The difference comes after one year: most of the lags are now significantly different from zero. There is an increase in cases filed in the

[12]lead1, i.e., the month before the court is completed is the omitted category in this regression.

FIGURE 3. EVENT STUDY



Note: Each dot is a regression coefficient of number of cases filed in the month on a month dummy. lag0 is a dichotomous variable equal to 1 in the month after the court is built, 0 otherwise. lag12 is a dichotomous variable equal to 1 in the 12th month (i.e., 1 year) after the court is built. Leads are for periods before the court is built. For example, lead12 is a dichotomous variable equal to 1 in the 12th month (i.e., 1 year) before the court is built. lead1 is the omitted category, the month before the court is opened. The dataset is restricted to the planned courts, either built or with delays.

treatment group, one year after the court is built. This motivates our empirical specification to include a short-run (less than 1 year) and long-run analysis (longer than 1 year) after the court is built.

Figure D1 shows the raw data for each court. It is apparent in most cases that the number of cases filed increases after completion of the court.

IV. Empirical Methodology

Following this graphical analysis, we regress the number of cases filed on three variables: a dummy variable taking the value 1 for all years one year after the court is completed (the long-run effect, which we call $CompletedCourt^{1+}$, where superscript 1+ indicates one year and more after), another variable taking the value 1 in the first year after the court is completed (the short-run effect, which we call $CompletedCourt^{0}$, where superscript 0 indicates the time in the first year after a court is built), and a third variable taking the value 1 a year before the court is completed (to test for parallel pre-trends, which we call $CompletedCourt^{-1}$, where superscript -1 indicates the time in the year before a court is built). The control group is the courts not yet completed. We undertake the analysis at the daily level since we have daily data in the DCRT and the exact

day of opening of courts.

The specification is:

$$\begin{aligned} NumberFiled_{cd} &= \beta_0 + \beta_1 CompletedCourt_{cd}^{1+} + \beta_2 CompletedCourt_{cd}^{0} \\ &\quad + \beta_3 CompletedCourt_{cd}^{-1} + \alpha_c + \gamma_d + \varepsilon_{cd} \end{aligned} \tag{1}$$

where $NumberFiled_{cd}$ is the number of cases filed in court c on day d. α_c are court fixed effects, γ_d are day fixed effects, and ϵ_{cd} is the error term. The coefficient of interest is β_1, measuring the effect one year after a court is completed. Standard errors are clustered at the level of courts.

Courts are completed in a staggered way. A recent literature has shown that in this case, a standard twoway fixed effects estimator could be biased (Goodman-Bacon, 2021). The reason is heterogenous effects over time. When a treated unit remains treated, it enters the control group since is treatment status does not vary anymore. If the treatment effect grows over time, it could bias downwards the estimate. This is a distinct possibility in our setting: it takes time for people to realize a new court has been built and file a case in court. We find evidence of this in Figure 3: the effect is growing over time.

To address this concern, we use the simple two-stage procedure developed in Gardner (2021). The intuition for this methodology is simple. In a standard twoway fixed effects estimator, the heterogeneous effects over time are picked up by the disturbance term. They are correlated with the fixed effects (since heterogeneous effects occur in certain places at certain times). This introduces a bias since the disturbance term is correlated with some of the explanatory variables. The issue is caused by the fixed effects. The solution of Gardner (2021) is simple: in a first step, we estimate the fixed effects before the treatment happens, for each court and time. For each court, we estimate a fixed effect before the court becomes treated. For each time unit, we estimate a fixed effect for the un-treated courts. These estimates are unaffected by the treatment since they are estimated before the treatment. We then predict the residuals from the first step. In a second step, we regress these residuals on the treatment, with no fixed effects since they are already incorporated in the first step. Gardner (2021) formally shows that this method delivers estimates free from the bias due to staggered introduction design. We also present the imputation method of Borusyak et al. (2022).

The dataset is very large: N=9,052,199 observations in total from October 2015 to March 2021 and N=33,602 when the data is averaged at the daily level as the analysis requires and is restricted

to the sample of courts built or not completed yet. Despite this large sample, one may argue that it ultimately comes from 29 courts.

To address the issue of small sample size, we propose two corrections. First, we use the exact Fisher test (Young, 2018). This permutation test is an exact test regardless of sample size or distribution of error term, as opposed to conventional t-tests which depend on the assumption of large samples (to use asymptotic results), a condition that may be violated in the sample we use, or a normal distribution of the error term. To implement this procedure, we obtain the observed t-stat for the outcome in question, permute the observations randomly between the treatment and control groups, obtain a simulated t-test, repeat this 1,000 times, and find the proportion of occurrences the simulated t-stat is above the observed t-stat, which is the Fisher p-value.

Second, we use the Wild Cluster Bootstrap methodology described in Cameron et al. (2008). In our analysis, we use the 6-point weight distribution proposed by Webb (2014).

V. Results

A. Effects on Cases Filed

Table 2 shows the result. Column (1) shows that the number of cases filed per day increases by 3.15 cases one year after a court is completed. This is a large effect considering there are on average 4.57 cases filed every day in the control group of courts. Courts are almost doubling in size (in terms of number of cases filed).

The result is robust to the corrections for staggered introduction design proposed by Gardner (2021) and by Borusyak et al. (2022), or when using the Fisher test and the wild cluster bootstrap.

One concern with these results is spillovers: there might be more cases at the expense of the control group. In Appendix E, we develop a test of spillovers by looking at the evolution of cases filed in the control group of courts once new courts open in the vicinity (using the GPS data of courts to calculate the distance to the nearest completed court on every single day). We find no evidence that the number of cases filed decrease in the control group when new courts open in the vicinity. In any case, there are strict rules on where to file a case in Kenya such that people cannot choose the court in which they file a case.[13] Figure E1 in Appendix D shows no decrease in cases filed in the control group, which goes counter to the argument that people pulled out cases of the control group to file them in the treatment group.

Another concern is that delays may be related to corruption. According to this reasoning, the

[13]Explained in sections 11 to 18 of the Civil Procedure Act. For example, a case related to property must be filed where the property is situated. Other suits must be instituted where defendant resides or cause of action arises.

treatment group might be systematically less corrupt than the control group, which could explain the economic effects found in the paper. Recall that none of the reasons for delays are related to corruption. There were several audits and financial reviews of the Project and none came to a conclusion of corruption in relation to any contractor /construction project.[14] In one project, there was no corruption but "the contractor did not reinvest the project money into the contract".[15] When we exclude that project in Appendix G, the results stay the same. Moroever, the corruption of treated and control areas were on parallel trends before the courts opened, as shown in Appendix G. In fact, when we exclude any of the reasons for delays (adverse weather conditions, unsuitable ground conditions, contractor delays, slow release of funds), the results remain largely similar, such that the results do not hinge on one particular source of delay, as shown in Table H1 of Appendix H.

Another threat to endogeneity is that the end date may be exogenous, but not the start date. If the treatment group is started earlier and prioritized, then it will also end earlier. This is not the case in this project, most courts in the treatment or control groups were started in the years 2016 and 2017. In Appendix F, we restrict the sample to courts started in the same year (i.e., 2016 or 2017) and get very similar results.

In terms of the model, these results can be interpreted as a doubling in the incentives to sue. Recall from the model that the key condition to sue is $p\beta^T - c > 0$. If we witness a doubling of cases filed, this is equivalent to a doubling in the incentives to sue $p\beta^T - c$, more people are suing. In the next sections, we will disentangle whether the precise mechanism is through a decrease in costs c or a decrease in T. Whatever the precise mechanism, the incentives to sue have improved, which should translate according to the model into greater investment.

The effect is much smaller in the short-run, still significant, with 1.38 more cases filed per day. The effect is not significant one year before the court is completed. This is a confirmation that treated and control courts were on similar trends before the courts were built.

B. The Nature of Cases Filed

We now turn to the exact nature of the new cases filed to understand better what could be the effects of increased access to justice.

We start with a simple decomposition of cases by their civil or criminal nature. We find more civil cases filed in Column (1) of Table 3. We dig further into the nature of civil cases. Civil cases can be succession cases. To officially transfer the land in Kenya, one has to file a case in court (Aberra

[14]Information from interviews with the JPIP team.
[15]Information from interviews with the JPIP team.

Table 2—Effects of Court Building On Number of Filed Cases

	(1) Number Filed
$CompletedCourt^{1+}$	3.15**
	(1.51)
Robustness Checks:	
2 Stage DID	2.20**
	(0.90)
DID imputation	2.36***
	(0.69)
Fisher (p-val)	(0.04)**
Wild-Cluster Bootstrap (p-val)	(0.015)**
$CompletedCourt^{0}$	1.38***
	(0.48)
$CompletedCourt^{-1}$	0.61
	(0.46)
Control Group mean	4.57
Observations	33602

Note: Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The dependent variable is the number of cases filed per day in a court. The variable $CompletedCourt^{1+}$ is a dichotomous variable equal to 1 for all years one year after the court has been completed, 0 otherwise. The variable $CompletedCourt^{0}$ is a dichotomous variable equal to 1 in the first year after the court has been completed, 0 otherwise. The variable $CompletedCourt^{-1}$ is a dichotomous variable equal to 1 one year before the court has been completed, 0 otherwise. "2 Stage DID" is the two stage estimator proposed in Gardner (2021). DID imputation is the method proposed in Borusyak et al. (2022).The Fisher test shows the p-value of that test.

and Chemin, 2023). This is a big issue in Kenya, and more generally in Sub-Saharan Africa, since not many people file a case in court and complete the proper succession process. Upon the death of an individual, the land is not always officially transferred and the descendants do not obtain a proper title to their land. They cannot use the land as collateral and the insecurity of property rights dampens investment.

With the newly completed courts, more succession cases are filed. According to the logic above, this may have important downstream effects on ownership of the land, which we will verify in a section below.

Next, we turn to cases of a commercial nature. These include: breach of contract, commercial suits (debt/loan, rent etc.), bankruptcy, employment and labour cases, land matters, and income tax cases. There are more such cases filed in court, as shown in Column (3) (albeit with a violation of the pre-trend, almost insignificant at conventional levels with a p-value=0.099). This may have downstream economic effects: people sue more for contract enforcement, debt repayment and land rights.

Table 3—Effects on Type of Cases Filed

	(1) Civil	(2) Succession	(3) Commercial	(4) Criminal	(5) Property
$CompletedCourt^{1+}$	0.72**	0.68***	0.14**	2.10	0.28*
	(0.31)	(0.22)	(0.054)	(1.34)	(0.16)
$CompletedCourt^{0}$	0.53***	0.35**	0.081**	0.83*	0.12
	(0.18)	(0.15)	(0.039)	(0.42)	(0.097)
$CompletedCourt^{-1}$	0.22	0.17	0.042*	0.27	0.12
	(0.23)	(0.19)	(0.025)	(0.35)	(0.087)
Control Group mean	1.09	0.32	0.065	3.33	0.54
Observations	33602	33602	33602	33602	33602

Note: Standard errors are robust, clustered at the court level. In Column (1), the dependent variable is a dichotomous variable equal to 1 if the case is a civil case filed on the day, 0 otherwise. In Column (2), the dependent variable is equal to 1 if a succession case is filed on the day, 0 otherwise. In Column (3), the dependent variable is equal to 1 if a commercial case is filed on the day, 0 otherwise.

Out of completeness, we present in Appendix I all the other types of civil cases (e.g., personal injury or family cases) available in the data. Table I1 below shows little effects for other types of cases.

Turning to criminal cases, the effects are less pronounced in Column (4). The exception is property-related cases (theft, burglary, breaking and entering, trespass, possession of stolen goods, arson, damage, injury to property, goods, and stock theft). We see an increase in such filed cases in Column (5). This is important for the protection against expropriation. Table I1 in Appendix 3 shows all the other types of criminal cases.

Overall we find more cases filed for civil, succession, commercial, and property cases. Before looking at the downstream effect on economic outcomes of this increase in cases filed, we verify the effect on court speed and unpack the mechanisms for this effect.

C. Effects on the Speed of Courts

More cases filed may clog the courts, which may negate any positive effects of increased access to justice.

This is not the case in this project: we find a decrease in the time it takes to resolve cases. We measure the time to disposition by the difference between the date a case is resolved and the date of filing. The analysis is now at the case level, for all cases resolved. The sample size is thus much larger (N=125,245) as opposed to our previous analysis that was averaging all cases at the daily level.

We see a decrease in time to disposition in Column (1) of Table 4 below: while it takes on average

483 days to resolve a cases in the control group, it takes 119 days less once the court is completed, a 25 percent decrease.[16] This corresponds to a decrease in T in the model.

One explanation is that the new courts can accommodate more judges. In Column (2), we regress the number of judges every day in the court on the completed court dummy. There are 2 judges on average every day in court, this figure goes up to 2.5 after a new court is built. These judges are not pulled out of the control group: in Appendix E, we find no evidence of negative spillovers on judges in the control group. Judges were not part of the World Bank reform, only new court buildings were. Yet, the Kenyan judiciary took advantage of this reform to appoint more judges to these new locations.

Both factors appear to contribute to the explanation. In Column (3), we regress time to disposition on the new courts, adding the number of judges as a control variable. There is still an effect of the new courts, over and above the number of judges. In fact, the number of judges increases time to disposition (yet this coefficient must be interpreted with caution since it is a correlation not a causation). The takeaway is that new courts decrease the time it takes to resolve cases even when controlling for the number of judges.

Rather than directly attributing the influence to judges, it may be the well-crafted infrastructure of these new structures that spurs productivity. The addition of modern courtrooms, registries, holding cells, waiting areas, and accessibility features for disabled individuals as articulated in the project's description, thereby created an environment that enhances output. We delve into examining these potential factors further in the forthcoming segment of our analysis.

D. Effects on the Quality of Decisions

The increased speed of the new courts does not come at the expense of the quality of decisions. We look at appeals in courts, a frequently used proxy for the quality of decisions since lower-quality decisions are usually more appealed. We find no increase in appeals, either civil or criminal, as shown in Columns (1) and (2) of Table 5.

We also find no increase in cases closed (i.e., case terminated, dismissed, struck out, or closed) in Column (3). Thus, it is not the case that the increased in speed observed in the previous section comes from more cases being closed summarily.

Overall, there appears to be no decrease in the quality of decisions in the new courts. In fact, we document below an improvement in court user satisfaction with these new courts.

[16]The time to disposition is trimmed at 95 percent since there are some extremely high values in the data. The 95th percentile of time to disposition is 3,512 days, almost 10 years. The results are the same if we keep the entire sample, in fact larger and more significant (coeff = -183.6, SD = 81, average control group = 771 days).

Table 4—Effects On Speed of Courts

	(1) Time to-Disposition	(2) Number Judges	(3) Time to-Disposition
$CompletedCourt^{1+}$	-119.2*-	0.48***	-140.5**-
	(59.9)-	(0.13)	(58.9)-
$CompletedCourt^{0}$	-13.5-	0.13	-19.4-
	(52.1)-	(0.15)	(49.7)-
$CompletedCourt^{-1}$	-17.6-	0.19	-22.6-
	(50.3)-	(0.15)	(53.0)-
Number Judges			38.3**-
			(16.6)-
Control Group mean	483.6-	1.92	483.6-
Observations	125245-	33602	125245-

Note: Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. In Column (1), the dependent variable is time to disposition, trimmed at 95 percent. In Column (2), the dependent variable is the number of judges in a court in a day.

E. Effects on Court User Satisfaction and Access to Courts

To gauge the response of court users to the new courts, we use Court User Satisfaction Surveys (CUSS) collected by the Kenyan judiciary in 2015, 2017, and 2019. These surveys contain a specific section on court building. We present below all the questions asked in this section. Overall, we find an overwhelmingly positive response from court users.

We define a variable equal to 1 if the court is completed, 0 if not yet completed. Note that the year of completion can be 2017 or 2019 depending on the court. As before, the sample is restricted to the planned courts, completed or not. In Appendix J, we show a pre-trends test for all the courts that got completed in 2019 (2017 being the pre-period to test for parallel pre-trends) and all the variables available in the three waves of data and find that courts were on parallel trends before the treatment.

In Column (1) of Table 6, the first question is: "The court room space is adequate" (answers on a 4 point scale: 0: Strongly Disagree, 1: Disagree, 2: Agree, 3: Strongly Agree). In the control group, people answer on average 1.38 (the answers can vary between 0 and 3). After a court is completed, the answers increase by 0.62. This is a very large effect, a (0.62/1.38=) 45 percent increase, or a (0.62/0.95=) 0.65 SD increase. The court building is thus accompanied with a significant increase in satisfaction by court users.

The rest of the table shows significant improvement in satisfaction with the safety and cleanliness of court rooms, the ease to locate court buildings and court rooms, the appropriateness of the

Table 5—Effects On Quality of Decisions

	(1) Number Filed Civil Appeals	(2) Number Filed Criminal Appeals	(3) Number Case Closed
$CompletedCourt^{1+}$	-0.24	0.096	0.065
	(0.18)	(0.17)	(0.46)
$CompletedCourt^{0}$	-0.14	0.062	0.12
	(0.099)	(0.12)	(0.41)
$CompletedCourt^{-1}$	-0.18	-0.16*	-0.14
	(0.12)	(0.094)	(0.34)
Control Group mean	0.31	0.44	1.03
Observations	33602	33602	33602

Note: Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. In Column (1), the dependent variable is the number of cases filed which are civil appeals. In Column (2), the dependent variable is the number of cases filed which are criminal appeals. In Column (3), the dependent variable is the number of cases closed (case terminated, dismissed, struck out, or closed).

registry space, waiting areas, and facilities for the disabled; which are all important dimensions of access to justice. Column (9) shows improvement of an index averaging the 8 variables on court building. The fact that all these variables show unambiguous large positive effects is indicative of increased satisfaction with the court building program.

To visualize our results, we restrict the sample to courts that got completed between 2017 and 2019 versus the control group of courts that are not yet completed. This graph is shown below in Figure 4. The variable represented is the court building index constructed as the unweighted average of all the variables of Table 6. The blue line is for courts completed in between 2017 and 2019. The black line is for the control group of courts not yet completed by 2019.

One can clearly see in this graph parallel trends between 2015 and 2017, and a big difference in the period after of 0.4, exactly like in column (9) of Table 6.

Table K1 in Appendix K also shows an increase in satisfaction with court cells, which was another component of the court building program. We do not include these variables in the general court building index of Table 6 since cells quality affects only a certain category of the population (those incarcerated), while the court building index is more general and affects all court users.

Improvements in court buildings increase access to justice, a result shown in Column (1) of Table 7. We have already seen an increase in cases filed in the previous section. We now confirm these findings by looking at the demographic make-up of court users measured in the satisfaction surveys. The surveys contain information on the court user, whether he/she is a plaintiff, defendant, lawyer, police or prosecutor, etc. We restrict the sample to the parties only, i.e., plaintiffs and defendants.

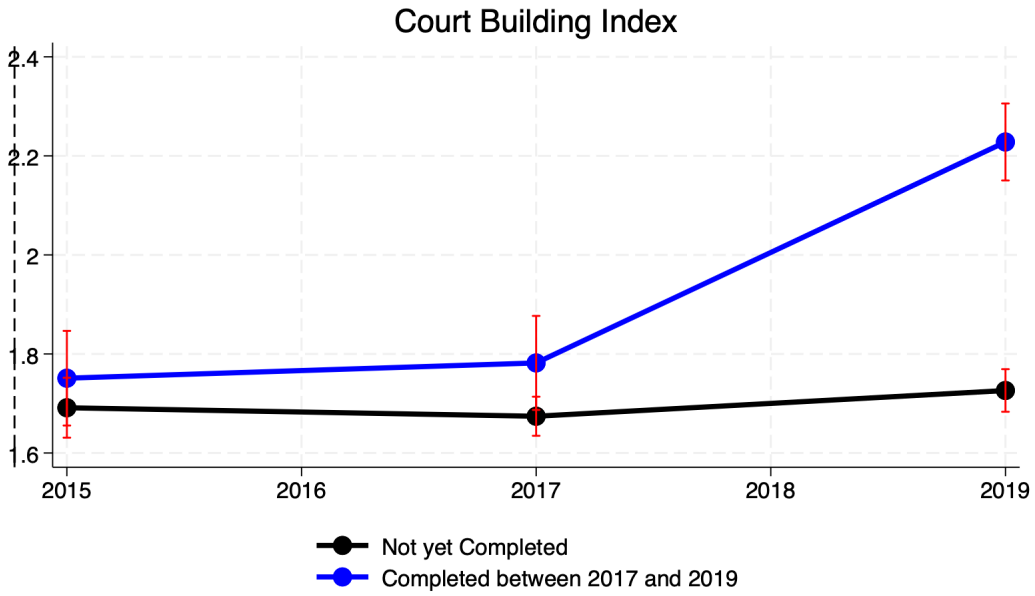
Table 6—Effect on Court Infrastructure

	(1) Court room space is adequate	(2) Court rooms safe	(3) Court rooms clean	(4) Court building easy to find	(5) Easy to locate court rooms
Completed Court	0.62**	0.34***	0.32**	0.25*	0.34**
	(0.26)	(0.12)	(0.13)	(0.13)	(0.12)
Observations	3,026	3,912	3,067	4,008	3,980
Year FE	YES	YES	YES	YES	YES
Court FE	YES	YES	YES	YES	YES
Mean Dep Var	1.38	1.90	2.13	2.01	1.93
(SD)	0.95	0.85	0.70	0.84	0.83

	(6) Registry space is adequate	(7) Waiting area	(8) Facilities for disabled	(9) Court Building Index
Completed Court	0.53**	0.79***	0.46**	0.43***
	(0.19)	(0.19)	(0.19)	(0.13)
Observations	3,514	3,903	3,582	4,138
Year FE	YES	YES	YES	YES
Court FE	YES	YES	YES	YES
Mean Dep Var	1.43	1.53	1.19	1.71
(SD)	0.93	1.07	0.98	0.58

Note: Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. In Column (1), the dependent variable is the answer to the question "The court room space is adequate" (answers on a 4 point scale: 0: Strongly Disagree, 1: Disagree, 2: Agree, 3: Strongly Agree). In Column (2), the question is: "The court rooms are safe". In Column (3), the question is: "The court rooms are clean". Notice that the sample size is slightly smaller in Columns (1) and (3) since there is no 2015 data. The analysis is still possible though since there is 2017 and 2019 data and courts opening in that period. In Column (4), the question is: "The court building was easy to find and Signages are well displayed". In Column (5), the question is: "It was easy to locate registry, court rooms & other facilities within the Court". In Column (6), the question is: "The registry space is adequate". In Column (7), the question is: "There were sufficient sitting spaces in the waiting areas". In Column (8), the question is: "There is adequate provision of facilities for persons living with disabilities the building ". In Column (9), the dependent variable is the unweighted mean of the first 8 variables. The variable "Completed Court" is equal to 1 if the court is completed, 0 if not yet completed. In all columns, the sample is restricted to the planned courts, completed or not.

Figure 4. Graph of the Court Building Index



Note: The treatment group (blue line) is courts that got completed between 2017 and 2019. The control group (black line) is courts not yet completed by 2019. On the y-axis, the variable is the court build index (the unweighted average of all the variables of Table 6).

We define a dichotomous variable equal to 1 if the parties are of primary education level, 0 if secondary or tertiary. In the control group, 42 percent of the parties have a primary education level, whereas 58 percent have a secondary education level or more. This is higher than the average education levels in Kenya, where only 48 percent of the population ever goes to secondary school.[17] Thus, parties in court are disproportionately well-educated in Kenya, which points to a problem of access to justice.

After a court is completed, the share of litigants with only primary school education grows by 16 percentage points, from 42 to 58 percent, much more in line with Kenya's average. Thus, the program transforms the courts from an elitist institution to a nationally representative one.

In other words, access to justice has improved and people with less education now use the courts.

Overall, we find that courts are better, cleaner, safer and easier to navigate. In terms of the model, this corresponds to a decrease in the costs c to go to court. Combined with the finding that T decreases, this corresponds to an increase in $p\beta^T - c$, the incentives to file a case in court. If the costs c decrease by (0.43/3=) 14 percent as found in Column (9) of Table 6 and time to completion reduces by 119 days as found in Column (2) of Table 4, $p\beta^T - c$ doubles (see Appendix C for greater details on the calibration of the model). This is what we find: an almost doubling in the number of

[17]Data from World Development Indicators: https://data.worldbank.org/indicator/SE.SEC.NENR?locations=KE

Table 7—Effect on Access to Justice

	(1) Primary Education Parties
Completed Court	0.16**
	(0.07)
Observations	1,519
Year FE	YES
Court FE	YES
Mean Control Group	0.42
(SD)	0.49

Note: Robust standard errors, clustered at the level of the court. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. In Column (1), the dependent variable is the education of parties (simply coded as 1 if primary education level reached, 2 if secondary and 3 if tertiary). The sample is restricted to parties only: plaintiffs and defendants. The variable "Completed Court" is equal to 1 if the court is completed, 0 if not yet completed. In all columns, the sample is restricted to the planned courts, completed or not.

cases filed in court. Thus, our results are in line with a simple model of the judiciary. Appendix C presents a calibration of a more sophisticated model with information asymmetries and cases filed in court, which delivers similar quantitative findings.

F. Economic Effects

After evaluating whether the court building program increased access to justice and the satisfaction with court services, we now assess whether it led to downstream economic impacts. Earlier we found that the program increased the number of commercial cases, which include contract enforcement cases. We then turn to evaluate whether this impacted firm outcomes by using the World Bank Enterprise Surveys (henceforth known as the Enterprise surveys) collected in 2013 and 2018. These surveys contain GPS data, measures of perception of court and measures of firm investment.

We first check that firms situated nearby a completed court experience an improvement in their perception of court services.

In Column (1) of Table 8 below, the dependent variable is the answer to the question "Do you agree with the following statement: The court system is fair, impartial and uncorrupted?" on a 4-point scale where 1 is Strongly disagree, 2 is Tend to disagree, 3 is Tend to agree and 4 is Strongly agree.

We use the GPS data for every firm and define a variable "Completed Court" equal to 1 if a

court has been completed in a radius of 50km around the firm, 0 otherwise.[18] This measures the treatment effect, i.e., being in an area where a court has been completed and with a court completed by 2018.[19]

Analogous to our previous analyses, we construct a control group of firms operating in a radius of 50km of courts not yet completed by 2018. Therefore, the identification strategy rests on the exogeneity assumption of the construction delays. The sample is restricted to firms operating nearby courts that got completed or not by 2018. All these areas were selected to receive the treatment, but only the treatment group received a court in the end, due to construction delays in the control group.

Column (1) of Table 8 shows that perceptions of courts improve after courts are completed. Thus, this means that all firms, regardless of whether they are engaged in legal cases, have a better perception of courts after the court is completed. This is an important finding. While our previous results were focused on court users, these new results indicate that the court building programme was well known by firms even if they were not using the courts at the time. One could thus expect wider effects on the local economy beyond the impact on court users.

In these regressions, we include the dummy variable "Ever Completed Court"—a time-invariant variable equal to 1 if the firm is located in a radius of 50km of courts that would be completed by 2018, 0 otherwise. This variable measures the differences at baseline between the places that ever got treated, and the control group that did not get a court by 2018. If the places that received a court are special in any way, this coefficient should be different from zero. To make the link with a 2 by 2 difference-in-difference model with the standard notation "TREATMENT", "POST", and "TREATMENT*POST", "Completed Court" corresponds to TREATMENT*POST, the treatment effect, while "Ever Completed Court" corresponds to TREATMENT, the time-invariant dummy for the treatment group measuring differences at baseline; and a dummy for the year 2018 is POST, which is also included in this model.[20]

Column (1) shows that the coefficient of "Ever Completed Court" is not significantly different

[18]We use a radius of 50 km for two reasons. First, it is possible that a firm would travel 50km to go to court; greater distances, say 100km would be less likely. Second, this radius ensures that there is a sufficient number of firms in the treatment group of firms situated nearby a court. A smaller radius would include less firms. There are not many firms situated 5km from a completed court. In fact, using a radius of 20km around courts would include only 24 firms in total. That figure goes up to 69, 171, and 292 with radii of 30, 40, and 50km. A radius of 60km is the first radius for which the treatment group (N=887) is greater than the control group (N=791). A larger radius would include too many firms since, by definition, all firms are situated nearby a completed court with a large enough radius. A radius of 50km thus represents a good compromise between too small and too large a radius. Table L1 in the Appendix shows very similar results with other radii.

[19]The full list of courts opened by 2018 is: Kitui Magistrate Court in Kitui County; Kangema Magistrate Court in Muranga County; Makindu Magistrate Court in Makueni County; Kigumo Magistrate Court in Muranga County.

[20]Notice that the treatment is not exactly at the county level since treatment is defined by distance to the completed court, not by being in a certain county. Hence, we choose "TREATMENT", "POST", and "TREATMENT*POST" as our preferred specification with no county fixed effects. When we add county fixed effects to the model and cluster the standard errors at the county level in Table M1 in Appendix M, we find exactly the same results.

Table 8—Effects of Court Completion on Firms

	(1)	(2)	(3)	(4)
Dep Var:	Perception Courts	Investment	Investment	Investment
Sample:	All firms	All firms	Contract Intensive	Not Contract Intensive
Completed Court	0.23*	67.16*	158.50***	7.52
	(0.13)	(36.85)	(60.55)	(50.68)
Ever Completed Court	0.14	-7.63	-9.42	-6.83
	(0.10)	(8.93)	(11.23)	(11.77)
Observations	1,348	566	254	306
Year FE	YES	YES	YES	YES
Mean Dep Var	2.237	178.8	171.2	189.3
(SD)	0.964	859.3	1094	604.2

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors. In Column (1), the dependent variable is the answer to the question "Do you agree with the following statement: The court system is fair, impartial and uncorrupted?" on a 4-point scale where 1 is Strongly disagree, 2 is Tend to disagree, 3 is Tend to agree and 4 is Strongly agree. The variable "Completed Court" is equal to 1 if a court has been completed by 2018 in a radius of 50km, 0 otherwise. "Ever Completed court" is equal to 1 if a court has ever been completed in the area. In Column (2), the dependent variable is capital stock per worker, equal to the cost for the establishment to repurchase all of its machinery divided by the number of workers, using PPP exchange rates, in thousand dollars, and trimmed at 1 percent, i.e. 13,000. In Column (3), the sample is restricted to contract-intensive firms. i.e., in a sector above the median in the indicator proposed by Nunn (2007). In Column (4), the sample is restricted to the other firms, in non-contract-intensive sectors.

from zero, which indicates no significant differences between areas where a court would be completed by 2018 and the other areas where the court is not completed yet. It is not the case that the perception of courts was significantly higher or lower before the treatment in the areas that ended up receiving the treatment.

Considering this positive shock on firms' perception of courts, we now turn to their investment. We proxy investment by capital stock per worker. Since the analysis is comparing the evolution of the dependent variable over time between 2013 and 2018, the interpretation is in the change of the capital stock, i.e., investment.[21] Column (2) shows an increase in investment after a court is completed of 67 thousand USD PPP per worker. This is to be compared with average investment levels of 179 thousand USD PPP per worker, i.e., a 37 percent increase. This is a large effect. When we multiply this effect by the number of firms affected in the sample,[22] we find a total added investment by firms of USD 100 million, more than the costs of this program (USD 45.5 million).

A potential argument may be that the court construction itself boosts the local economy, by

[21]The capital stock is estimated in the Enterprise surveys by the replacement cost to repurchase all of its machinery. This question is only asked to the manufacturing sector, not services sector, hence the smaller sample size.

[22]i.e., 1500 firms when we count the number of firms in the dataset in the treatment group in the year 2018, and properly weigh them by the right factor in the World Bank Enterprise Surveys to account for sampling.

bringing jobs and economic activity, hence the positive effects detected. This explanation does not line up with the timing of events: we measure economic activity after the courts are completed, not during the construction. After construction is over, the potential temporary boost due to the court construction is over. In contrast, the boost is still on-going in the control group. Thus, the coefficient should be biased downward, not upward, if that hypothesis is correct.

Columns (3) and (4) look at the mechanisms underlying the economic effects. Recall from the model that access to courts is especially important for contract-intensive sectors. To classify sectors according to their contract-intensive nature, we use the measure suggested by Nunn (2007): 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. Nunn (2007) uses the input-output table from the US Bureau of Economic Analysis to estimate the input need per sector. The US is used as a benchmark country where the assumption is that courts are "near-perfect", and therefore input need is driven by technological factors solely, not by contract enforcement deficiencies. In a way, this analysis measures the technological need of each sector for a certain input, independent of contract enforcement mechanisms. He then matches this with data from Rauch (1999) on goods sold on internationally organized exchanges. In our analysis, we match each industry in the Enterprise surveys with the dataset of Nunn (2007), and use his measure of contract intensity. We then classify firms in two sectors: a "contract-intensive" one, scoring above the median in its disposition to use specific inputs not sold on international exchanges, and a less contract-intensive one, scoring below the median. Industries that fall under the least contract-intensive category usually deal with primary inputs that aren't tailored and are frequently traded in voluminous markets, such as poultry processing, flour production, petroleum refining, corn milling, and oilseed processing, among others. Conversely, the most contract-intensive industries include various sectors related to automobile, aircraft, computer, and electronic equipment manufacturing. These industries predominantly utilize inputs that necessitate investments specific to particular relationships.

In Column (3), the sample is restricted to contract intensive firms. We find a disproportionate effect for firms in contract-intensive sectors, much less so in non-contract intensive sectors. This is in line with the theory stating that firms in contract-intensive sectors are especially dependent on courts since highly specialized inputs cannot be sold to other firms and contract enforcement is key.

The effects are large and in line with quantitative estimates from the theoretical model. Recall

from our results above that the number of cases filed doubled with the new courts. We interpreted this as a doubling of the incentives to sue, $p\beta^T - c$. Also recall from the model that effort is $\left(\frac{(p\beta^T - c)A}{2}\right)^2$, in other words the square of $p\beta^T - c$. If $p\beta^T - c$ doubles, one would expect a quadrupling of investment. Of course, this depends on the exact functional form chosen for the effort function, square root in our case. We find a smaller effect in Column (3) of Table 8, with only a doubling of investment (which is more consistent with an elasticity of the output function to capital of 0.33, see Appendix C for greater details). This order of magnitude can thus be expected with a doubling of the use of courts generated by the programme.

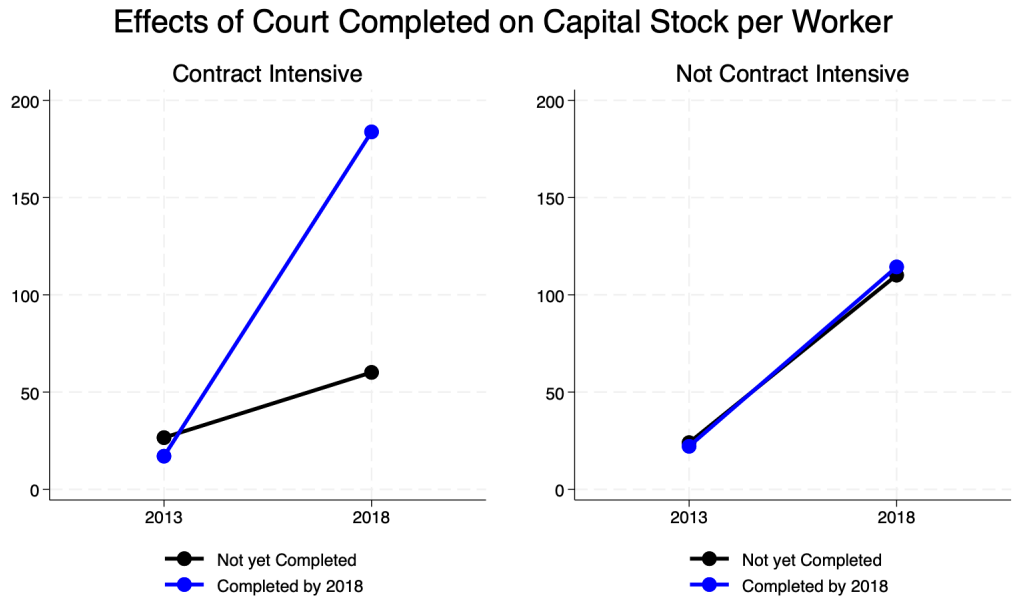
Column (4) shows no effect on firms engaged in sectors not contract intensive. We can visualize all these results on Figure 5 below. In this figure, we graph the average capital stock per worker, for firms in contract-intensive sectors on the left and not in contract-intensive sectors on the right. The lines are remarkably parallel on the right: the treatment and control groups are evolving similarly, for firms not in contract-intensive sectors less affected by courts. This provides another visual test of the parallel trends: it is not the case that the treatment was implemented in places that would have experienced greater economic growth absent the reform. If the treatment group was on a different trend, it should be visible there, but there is no different trend. The figure on the left is very different: firms in the treatment group, affected by the new courts since they are in contract-intensive sectors, invest and increase considerably their capital stock per worker compared to the control group.

To give some context to these estimates on investment, we compare them to other well-known factors conventionally viewed to affect the investment climate. The World Bank Enterprise surveys contain questions on the main obstacles to do business. In Column (1) of Table 9, we add the question "To what degree is tax rates an obstacle to the current operations of this establishment?" (0 = No obstacle, 1 = Minor obstacle, 2 = Moderate obstacle, 3 = Major obstacle, 4 = Very severe obstacle). The obstacles are ranked by importance, according to their mean in the year 2018 displayed in the bottom row.

The most severe obstacle to firms is high tax rates. Yet court buildings continue to have an effect over and above these high tax rates. The coefficient of tax rates is negative, indicating a negative association between this obstacle and investment levels. This effect should be taken with caution since it is a correlation, not a causality; yet the coefficient of court building dwarfs that of tax rates.

The rest of the columns show the same result for all the other obstacles included in the dataset: the effect of court building remains positive even after controlling for the practices of competitors in the informal sector (Column (2)), corruption (Column (3)), electricity (Column (4)), access to

Figure 5. Effect of Court Completed on Capital Stock per Worker



Note: The treatment group (blue line) is courts that got completed by 2018. The control group (black line) is courts not yet completed by 2018. On the y-axis, the variable is capital stock per worker. The graph on the left is for firms in contract-intensive sectors, the one on the right is for firms not in contract-intensive sectors.

finance (Column (5)), tax administrations (Column (6)), business licensing and permits (Column (7)), crime, theft and disorder (Column (8)), labor regulations (Column (9)), and inadequately educated workforce (Column (10)).

The results are the same even when considering the entire sample, not just firms in contract-intensive sectors, as shown in Table N1 of Appendix N. The impact of new courts is greater than any of the other well-known factors determining the investment climate.[23]

Aside from more commercial cases filed in court, there were also more succession cases filed in court. This is important since this means that more people have followed the proper procedure to undertake a succession process, which entails the filing of proper documents in court. This may translate into more succession processes being done, and more property rights being transferred to descendants. Since the security of property rights is causally linked to economic development, this is an important channel to explore.

[23]Note that this comparison with self reported factors is valid only if the new courts did not affect themselves these other factors. This is true for some factors: new courts are unlikely to affect tax rates, electricity, tax administrations, an inadequately educated workforce. This is less true for other factors: new courts may influence the practices of competitors in the informal sector, corruption, access to finance, business licensing and permits, crime, theft and disorder, and labor regulations. To the extent that these other factors are not significant as shown in the table, this tends to show that the effect of new courts is not going through these channels (practices of competitors in informal sector, corruption, finance, licensing, crime, labor regulations), but through the channel emphasized in this paper: the greater productivity of firms engaged in relationship-specific sectors due to the enhanced ability to enforce contracts.

Table 9—Effects of Court Completion on Investment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample:					Contract Intensive					
Completed court * 2018	157.30***	155.19***	158.26***	157.69***	152.56**	154.98**	158.63***	158.83***	158.32***	162.26***
	(59.43)	(59.59)	(60.61)	(60.72)	(59.15)	(60.09)	(60.63)	(60.86)	(60.68)	(61.09)
Completed court	-8.96	-7.48	-9.49	-8.99	-6.86	-8.00	-9.84	-9.25	-9.45	-9.51
	(12.33)	(11.73)	(11.36)	(10.49)	(11.12)	(11.34)	(11.46)	(11.44)	(10.97)	(11.41)
Obstacles:										
Tax Rates	-0.75									
	(5.46)									
Practices Competitors Informal Sector		-7.18								
		(5.16)								
Corruption			0.51							
			(5.12)							
Electricity				-0.69						
				(6.00)						
Access To Finance					-4.80					
					(4.99)					
Tax Administrations						-5.94				
						(5.73)				
Business Licensing And Permits							-3.71			
							(4.23)			
Crime, Theft And Disorder								6.08		
								(11.93)		
Labor Regulations									0.59	
									(4.89)	
Inadequately Educated Workforce										5.99
										(5.31)
Observations	252	252	252	252	253	253	254	253	251	254
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Mean Obstacle	1.929	1.777	1.775	1.595	1.494	1.489	1.235	0.952	0.934	0.897
(SD)	1.213	1.239	1.355	1.161	1.172	1.172	1.103	0.964	0.943	1.014

Note: *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors, clustered at the level of the county. In all columns, the dependent variable is capital stock per worker, equal to the cost for the establishment to repurchase all of its machinery divided by the number of workers, using PPP exchange rates, in thousand dollars, and trimmed at 1 percent, i.e. 13,000. The sample is restricted to contract intensive firms, i.e., in a sector above the median in the indicator proposed by Nunn (2007). The variable "Completed Court" is equal to 1 if a court has been completed by 2018 in a radius of 50km, 0 otherwise. "Ever Completed court" is equal to 1 if a court has ever been completed in the area.

To do so, we combine the "2015/16 Kenya Integrated Household Budget Survey (KIHBS)" and the "Kenya Continuous Household Survey Programme (KCHSP) - 2019", using the one question in common useful to test this channel: "Does your household own this dwelling?" (answer can be "own", "rent", "pays no rent with consent of the owner", or "is squatting"). We define a dichotomous variable equal to 1 if the household owns its dwelling, 0 otherwise.

The most disaggregated geographic indicator is the county level. We define a variable "Completed Court" as a dichotomous variable equal to 1 if the county has a completed court by 2019 and 0 if the county had a court planned but not completed by 2019. The regression includes county and year fixed effects.

Having a court completed in the county increases the probability for households to own their dwelling by a significant 3.5 percentage points, as shown in Column (1) of Table 10. The average ownership rate is 71 percent. This confirms that the increase in succession cases observed in court translate into more titles being distributed to the population. Given the importance of property rights for the process of economic development, this is a significant result.

Table 10—Effects of Court Completion on Property Rights

	(1) Own Dwelling?
Completed Court	0.035** (0.015)
Control Group mean	0.71
Observations	29082
County FE	YES
Year FE	YES

Note: *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors, clustered at the level of the county. The lowest geographic level is the county, thus the variable "Completed Court" is a dichotomous variable equal to 1 if the county has a completed court by 2019 and 0 if the county had a court planned but not completed by 2019. In Column (1), the dependent variable is a dichotomous variable equal to 1 if the household answers "own" to the question "Does your household own this dwelling?" and 0 if rent, pays no rent, with consent of the owner, or is squatting). The regression includes county and year fixed effects.

VI. Conclusion

Our research finds notable effects of introducing new courts in regions with deteriorated judicial infrastructure. By comparing these areas with similarly-affected ones hindered by construction delays—attributed to challenges like inclement weather and fund disbursement issues—we observe

a twofold increase in court utilization once new structures were in place. Leveraging more than 9 million observations from the Kenyan Judiciary's daily administrative records, we find a surge in case filings relevant to economic activity, notably civil, commercial, succession, and property cases.

Furthermore, the new courts led to an increase in judicial efficiency, measured through lower disposition times. These new courts were accompanied by an increase in judicial staffing. In a horse race between the physical infrastructure and the increase in judges, our findings suggest that both the new buildings and the increase in judicial staff improved the efficiency of the judiciary.

These new courts permeated the wider economy, increasing equity in court usage and improving the perception of courts beyond its users. First, we measure the equity in access to justice by evaluating the level of education of court users, and find that court usage by citizens with up to primary education substantially increased, going from 42% to 58%. We also find that firms located around the courts improved their perception of the courts, increasing their reporting of the court system as fair, impartial and uncorrupted.

We then turn to evaluate the impact on economic activity. The expanded presence of the courts promoted firm investment, particularly in contract-intensive industries. Overall, firms increased their investment by 37%. Overall, we estimate that the increase in economic activity for the entire number of firms in these regions surpassed the cost of this program.

In addition to the improved contract enforcement, we find a 5% increase in citizens who own a dwelling. This effect points to an improvement in property rights as a result of the improved judicial system. Both of these effects are consistent with the increase in case filings related to contracts and property rights, and with the broader hypotheses from the literature indicating that improving the rule of law affects economic development through improved contract enforcement and property rights institutions.

Overall, our findings demonstrate the potential of expanding court presence on access to justice, judicial efficiency, and economic activity, particularly in an underresourced setting such as Kenya. In the largest court construction program in Sub-Saharan Africa, Kenya substantially expanded the presence and resources of the courts throughout the country. We contribute to earlier literature hypothesizing the importance of judicial reform on economic activity, and find substantial results from the new courts. The observed effects do not account for benefits like heightened trust in institutions or reduced contract breaches, and likely represent a conservative estimate. In essence, our results show the courts' transformative capacity to solidify the rule of law and boost economic growth.

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APPENDIX

Appendix A: New Courts

Figure A1. Courts Before (Left) and After (Right) - Continued

Nyando





Nanyuki





Kigumo





Figure A2. Courts Before (Left) and After (Right) - Continued

Nyamira





Engineer





Oyugis





Appendix B: Reasons for Delays

Table B1—Causes of delays

Court	Reason for Delay	Source
Mukurweini	Due to its limited financial capacity, the contractor could not employ enough workers (30 to 40 workers for a project that required at least 100). The contractor was terminated, and a new one hired.	www.judiciary .go.ke/tambaya-gets-a-new-court/Meeting with the JPIP team (May 25th, 2021).
Kapenguria	The small size of the designed construction site made it difficult to store the materials and advance the construction phase. Further delays were caused by management issues within the contractor's company.	Documents from the Judiciary Website: KAPENGURIA: KapenguriaMeeting with the JPIP team (May 25th, 2021).
Makueni	Construction was initially delayed by the contractor's inadequate financial capacity. The contractor faced resource constraints and, additionally, allowed their performance bond to expire, waiting some time to renew it. Further delays were caused by the insufficient number of workers employed by the contractor to push the project to completion.	2017/18 JPIP Workplan
Maralal	Initially, the remote location of the construction site (northern Kenya) made it challenging to transport materials from Nairobi. Additionally, lack of qualified experts on the site and bad management aggravated this problem.	2016/17 JPIP WorkplanMeeting with the JPIP team (May 25th, 2021).
Kwale	Initially, the project was delayed due to the contractor's slow mobilization after having been awarded the contract by the JPIP. Thereafter, financial capacity problems of the contractor caused construction to be halted at 80% completion.	Documents from the Judiciary Website: KWALE: CJ MARAGA LAUNCHES CONSTRUCTION OF KWALE HIGH COURT— Meeting with the JPIP team (May 25th, 2021).
Ol Kalou	Limited financial capacity and negligence from the contractor resulted in a termination of the contract. A new contractor was hired and construction resumed.	2017/18 JPIP WorkplanMeeting with the JPIP team (May 25th, 2021).
Kajiado	The contractor postponed the beginning of the construction by a year. Later, delays were caused by the inefficiencies that arose from the contractor requiring technical consultation during the design process.	Meeting with the JPIP team (May 25th, 2021).Status report of projects funded by GoK: July 2018

Table B2—Causes of delays or completion for courts completed

Court	Reason for Delay/Completion	Source
Kangema	As a small pilot project, Kangema Phase 1 was the first court to be finished along with the other pilot court in Kitui, experiencing no significant delays.	2013/14 JPIP workplan
Kitui	Like Kangema Phase 1, as a small pilot project, Kitui was the first court to be finished along with the other pilot court, Kangema, experiencing no significant delays.	2016-17 JPIP WORKPLAN 6.6.2016
Kigumo	The contractor was an engineer by profession. As such, having an understanding of certain technical issues allowed the contractor to advance his project efficiently, without experiencing any significant delays.	Documents from the Judiciary Website: MURANGA: Documents from the Judiciary Website
Makindu	The contractor was an engineer by profession so the construction of the court went quite smoothly. Additionally, the contractor had strong financial capacity. Thus, the contractor could continue advancing construction without submitting an invoice, avoiding delays.	Documents from the Judiciary Website: TAMU MAGISTRATE COURT: New court building opened at Tamu in Muhoroni
Molo	Although the contractor was not an engineer by profession, he had strong financial capacity. With the resources to speed up construction, the Molo project experienced no significant building delays. However, the official handover was delayed. The court continued functioning from the old court building and as construction progressed, the court gradually moved from the old building to the new structure and then the old building was demolished. Although the court had moved in, the official handover of the court, indicated by the court completion date listed, took some time as official handover requires the issuance of a Certificate of Practical Completion by the Building Services Unit. The project was not issued this certificate right away because some services, the completion of which was required to meet the certification criteria, took additional time.	Documents from the Judiciary Website: MOLO: New court building opened at Molo Law Courts
Engineer	As a rehabilitation project, the contractors began by constructing a building on the side of the existing court. The court was then able to move-in progressively as they demolished the old building. Thus, although the court has a late opening date, reflective of the delayed issuance of a Certificate of Practical Completion by BSU, the project did not actually experience significant delays. The contractor was an engineer and was able to advance construction efficiently.	2016-17 JPIP WORKPLAN 6.6.2016
Nyamira	Initially, the inadequate financial capacity of the contractor, compounded by the adverse weather conditions of the region, contributed to delays in court construction. Subsequently, the death of a family member during the construction process resulted in a loss of focus and managerial issues on the part of the contractor, causing additional delays.	2016-17 JPIP WORKPLAN 6.6.2016
Vihiga	Construction was delayed due to financial capacity issues. Although the JPIP attempted to motivate the contractor to increase labour and materials, the contractor was generally slow to do so. The JPIP channelled a sizable amount of funds into the project, however, the contractor's work was not in tandem with the resources provided, nor was it adequate to push the project forward. The heavy rains of the region represent an additional source of delay.	Documents from the Judiciary Website: VIHIGA MAGISTRATE COURT: New court building opened at Vihiga Law Courts

Table B3—Causes of delays

Court	Reason for Delay/Completion	Source
Nyando	Delays in Nyando can be primarily attributed to difficulties with the specific contractor. The contractor responsible for the Nyando project was also responsible for the Chuka and Tamu projects. Aggravated by general inadequate financial capacity, the contractor seemed overwhelmed with the project load. The contractor delayed payments to the suppliers and workers who eventually protested, ceasing work, thereby further delaying the project.	Documents from the Judiciary Website: KISUMU: KISUMU COUNTY CELEBRATES THE NEW COURT BUILDING OPENED IN NYANDO
Chuka	As in Tamu and Nyando, difficulties with the specific contractor responsible for these projects, including his inadequate financial capacity as well as his hesitancy to compensate workers, resulted in significant delays. The Chief Justice had to personally visit the Chuka site to speak with the contractor and try to advance the project.	Documents from the Judiciary Website: Tharaka-Nith: Chuka Law Courts
Oyugis	Initially, the project was delayed due to the topography of the site. The extremely sloped ground complicated the foundation construction process. The contractor, additionally, struggled with financial capacity issues. The JPIP encouraged the contractor to take out a loan from the bank and construction began with some speed. However, soon after, the contractor fell ill and remained absent from the site for a year. The project officially took 5 years, however, the court moved in in 2018, nearly two years before the official opening date in September of 2020. During this time, there were setbacks in the BSU's issuance of a Certificate of Practical (which is usually done when the court is 90% complete).	2016-17 JPIP WORKPLAN 6.6.2016
Tamu	As in Chuka and Nyando, difficulties with the specific contractor responsible for these projects, including his inadequate financial capacity as well as his hesitancy to compensate workers, resulted in significant delays.	Documents from the Judiciary Website: TAMU MAGISTRATE COURT: New court building opened at Tamu in Muhoroni
Nanyuki	Initial delays were caused by internal management issues within the contracting company. Resettlement requirements resulted in additional delays, as, although construction was to occur on government land, the existing tenants of the site had to be resettled and compensated by the Judiciary (as required by an evaluation completed by the World Bank).	Documents from the Judiciary Website: NANYUKI: CJ Maraga Fulfills Governor
Kakamega	Construction was delayed by labour issues. In the initial stages of the project, the contractor asserted that he could not source labour locally. The JPIP met with the contractor who was then able to source labour from nearby. Construction proceeded efficiently.	2017-18 JPIP Workplan
Isiolo	The location of Isiolo made it difficult to transport construction materials from Nairobi, resulting in significant delays. Concurrent organizational issues in the judiciary from 2013-2016 contributed to further delays in Isiolo. After the court was officially opened, complications in transporting furniture postponed the court's move-in date.	Documents from the Judiciary Website: KWALE: CJ MARAGA LAUNCHES CONSTRUCTION OF KWALE HIGH COURT
Nakuru	Due to the ground conditions of the area, it was necessary to change the strip foundation to a raft foundation to support the weight of the structure. Raft foundation is a stronger foundation consisting of a concrete slab which extends over the entire loaded area to reduce the stress of larger loads. This caused significant delays because of the approval process required to change the operation. Additional funding had to be sourced, however, the judiciary at the time was facing financial management issues. After construction continued, the contractor claimed that this change increased costs significantly. Disagreements between the parties about the change in costs resulted in further delays in the construction phase.	2016-17 JPIP WORKPLAN 6.6.2016Meeting with the JPIP team (May 25th, 2021).

Appendix C : Model

We consider the relationship-investment setting developed in the paper. We introduce the possibility of an information asymmetry: the buyer knows the probability p that the seller will win, whereas the seller only knows that p is distributed with a density function $f(.)$ and cumulative distribution function $F(.)$. The buyer knows more than the seller. This is justifiable if the buyer argues a defect in quality of the customized good (but knows for certain whether he is merely renegotiating prices down for no valid reason), while the seller is unsure and does not know for certain what will happen in court with this accusation. Information asymmetry between plaintiffs and defendants is a standard assumption in models of litigation in court (Bebchuk, 1984). We assume that $f(.) > 0$ in $[a, b]$ and 0 otherwise, $f(.)$ is continuous and differentiable. We further assume that $a\beta^T \frac{A^2}{2} - c\frac{A^2}{2} > 0$ such that the plaintiff has positive expected value of suing even for the lowest p.

Recall that in the absence of courts, the buyer renegotiates prices all the way down to zero since there is no credible commitment device. In stage 1 of the game, the seller offers a new price, a fraction α of the output $\frac{A^2}{2}$ produced, with $0 \leq \alpha \leq 1$. In stage 2, the buyer accepts the offer or not. If he does not accept, the seller goes to court (since $a\beta^T \frac{A^2}{2} - c\frac{A^2}{2} > 0$) and sues for the entire amount. In that case, the buyer will have to pay $(p\beta^T + c_d)\frac{A^2}{2}$. Thus, the buyer accepts to pay $\alpha\frac{A^2}{2}$ if it is less than the amount to pay in court. This is true if $\alpha < p\beta^T + c_d$. It can be rewritten as: $p > \frac{\alpha - c_d}{\beta^T} = q(\alpha)$. This happens with probability $1 - F(q(\alpha))$.

Thus, with probability $1 - F(q(\alpha))$, the buyer accepts to pay $\alpha\frac{A^2}{2}$. In the other case, the buyer rejects (with probability $F(q(\alpha))$), there is a trial. This actually gives an information to the seller: he/she knows that $p \leq q(\alpha)$. The likelihood of winning is $\frac{\int_a^{q(\alpha)} xf(x)dx}{F(q(\alpha))}$, which is the average probability among buyers with $p \leq q(\alpha)$.

The supplier's payoff is:

$$\pi(\alpha) = [1 - F(q(\alpha))] .\alpha\frac{A^2}{2} + F(q(\alpha)) \left[-c\frac{A^2}{2} + \beta^T \frac{A^2}{2} \left[\frac{\int_a^{q(\alpha)} xf(x)dx}{F(q(\alpha))} \right] \right]$$

The first term is the probability to accept the new price multiplied by the value of that new price. The second term is the probability that the buyer refuses the new price, the seller goes to trial, incurring costs c and gaining the value of the claim if he wins.

The seller maximizes his payoff subject to the new price offered α. Deriving $\pi(\alpha)$ with respect to α leads to the first-order condition:

$$[1 - F(q(\alpha))] - \frac{f(q(\alpha))}{\beta^T W}[c + c_d] = 0$$

Let α^* be the solution to this first-order condition and $q^* = q(\alpha^*)$.

Consider as a numerical example a uniform density function for p on the interval $[a, b]$. In that case, the first-order condition is: $q^* = b - \frac{c+c_d}{\beta^T}$. The probability of going to court is:

$$F^*(q^*) = 1 - \frac{c + c_d}{\beta^T}\frac{1}{b - a}$$

One can clearly see from this expression that the probability of going to court is inversely related to c. In other words, reducing the costs of going to court increases the number of cases filed in court.

The seller gets $\pi(\alpha^*)$, a fraction of the output produced. With a more flexible production function linking output to the capital stock used in the firm $f(k)$, the seller wishes to maximize: $\pi(\alpha^*)f(k) - k$. Thus $k^* = f'^{-1}(\frac{1}{\pi(\alpha^*)})$.

C1. Calibration of the model

We start with the simple suing condition $p\beta^T - c$ seen in the paper.

The "Doing Business" project (doingbusiness.org) gives an estimate for p, T, and c for the exact same dispute considered in this paper, i.e., a buyer refuses to pay for a customized good.[24]

In Kenya in 2020, $p = 0.5$, $T = 1.3$ years, $c = 0.42$. Suppose a discount rate of 5 percent. The gain from suing is $p\beta^T = 0.47$, such that the seller recovers 47 percent of the value of the claim. This is greater than the court costs (42 percent of the claim), such that the incentives to sue are small (5 percent of the claim) but positive. In other words, people will sue. The incentives to ex-post renegotiate $1 - p\beta^T - c$ are equal to 0.11, which is positive such that buyers will ex-post renegotiate.

Column (9) of Table 6 shows a 0.43 increase on a 3 point scale in the court build index. We can interpret this a reduction of 0.43/3=14 percent decrease in the costs c to go to court since courts are now better. According to the doing business project, court fees represent (11.5/42=) 27 percent of the total fees to go to court. Thus, total costs are reduced by (0.14*0.27=) 4 percent.

Column (2) of Table 4 shows a decrease in time to disposition by 119 days from an average 483 days.

[24]Local lawyers and judges are asked the cost (c) and time (T) it takes to solve such a case. The quality of the judiciary p is proxied by an index between 0 and 1 established by lawyers and judges. This index looks at best practices in court structure, proceedings, and case managements systems.

With this reduction in costs and time, $p\beta^T - c$ goes from 5 to 9.4 percent. In other words, the incentives to sue have doubled.

This is confirmed by our more sophisticated model with information asymmetries that generates the prediction of cases filed in court. We take $a = 0$, $b = 1$. The probability of a case going to court is 10 percent. Under the new parameters of c and T, this goes up to 19 percent, a doubling of cases filed in court.

Turning to economic effects, with an elasticity of output to capital of 0.33 and using $k^* = f'^{-1}(\frac{1}{\pi(\alpha^*)})$, capital goes from 0.002 to 0.005 and more than doubles, welfare goes from 0.003 to 0.008 and also more than doubles; in line with the results found.

Appendix D : Graphical Evidence

The next graphs show the result for each and every court in the treatment group, compared to the control group of courts not yet completed.

The first graph in Figure D1 shows the evolution of the number of cases filed for Kitui magistrate court, the first court ever completed on June 30 2015. The issue for this court is that there is no baseline data since the DCRT data starts in October 2015. Nonetheless, we show the data. The red line is centered on June 30 2016, one year after the court is built. It is reasonable to expect that the effects of a newly built court may take one year to be felt since it may take one year for people to realize a new court has been built and file more cases. In fact, the event study finds very little effects in the year following the completion of the court, but positive effects starting one year after the court is built. This is why we center the red line on June 30 2016, the merit of this analysis is to include the Kitui magistrate court in the analysis.

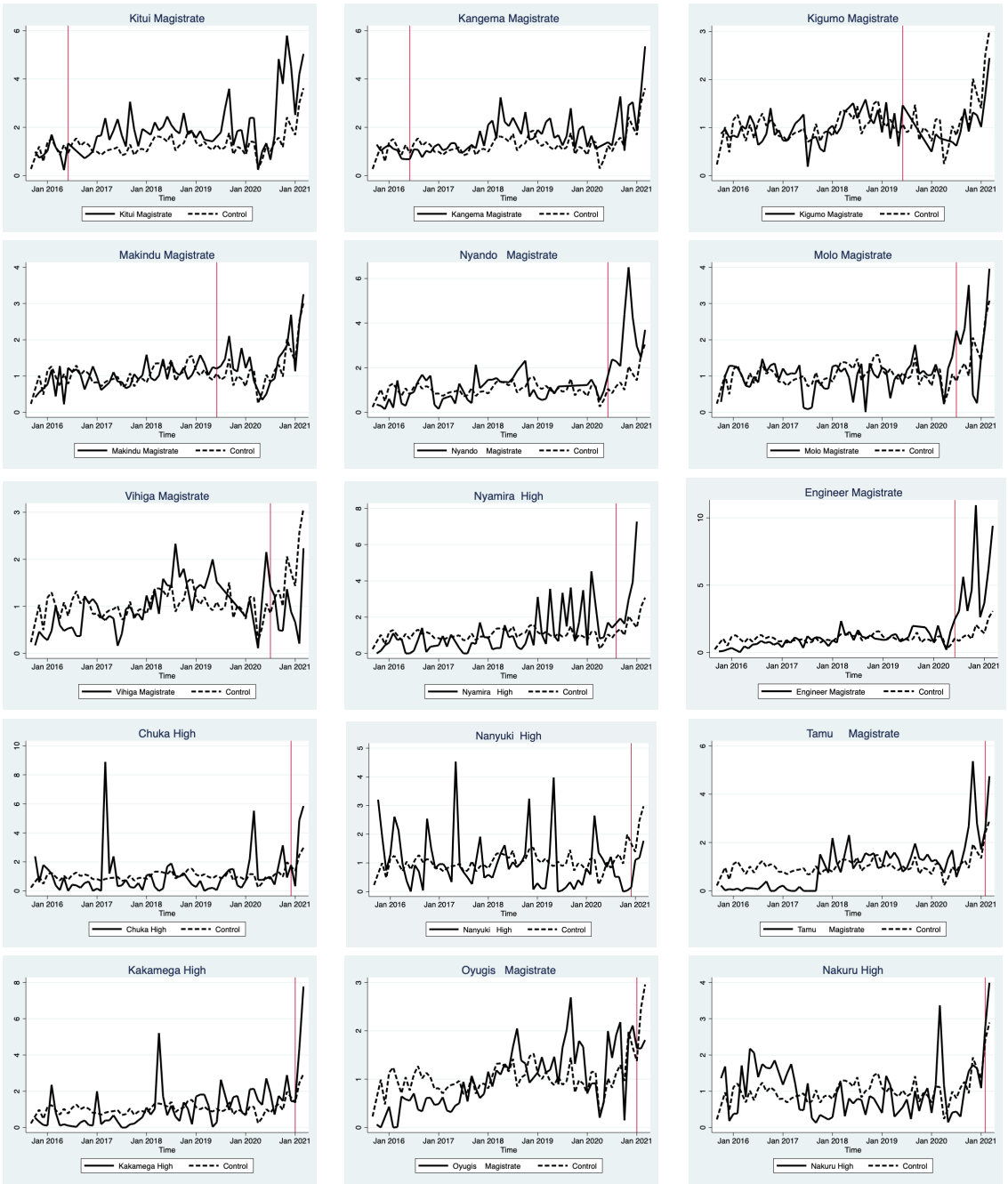
The solid line represents the number of cases filed in the Kitui magistrate court, while the dashed line represents the total number of cases filed in the control group of courts not yet completed by the end of the dataset, i.e., March 2021. Thus, the analysis compares the courts completed to the courts not yet completed.

The number of cases filed in a single court, e.g., Kitui magistrate court, is of course much less than the total number of cases filed in the entire control group. To make the two lines comparable, we divide the number of cases filed by the average number of cases filed in the period before the red line, i.e., before June 30 2016 for the case of Kitui magistrate court. Thus, both lines are quite close to the value 1 before the red line by construction.

The first graph shows that the number of cases filed in Kitui magistrate court increase one year after the completion of the new court compared to the control group.

The next graphs show a similar trend for most courts, i.e., an increase in cases filed compared to the control group after the court is completed (for Kangema magistrate, Makindu magistrate, Nyando magistrate, Molo magistrate, Nyamira high, Engineer magistrate, Chuka high, Nanyuki high, Tamu magistrate, Kakamega high, Nakuru high). The pattern is less obvious in Kigumo magistrate, Vihiga magistrate, Oyugis magistrate.

Figure D1. Number of Cases Filed in Court



Note: These graphs show the number of cases filed in each court, divided by the average number of cases filed in the period before the red line. The red line is situated one year after the completion of the court. The only exceptions are the last three courts, which have opening dates on June 30th 2020, June 30th 2020, and December 4 2020 respectively. For these courts, the red line is placed on the last month available, i.e., March 2021. The dummy variable in the regressions is defined in the same way.

Appendix E : Spillovers

In this section, we look at potential spillovers on the control group. To do so, we focus on the control group of courts not yet completed. We collect the GPS of all courts. On every single day, we calculate the minimum distance to the completed courts. We then regress the number of filed cases on this distance. The intuition is that with a completed court nearby, an individual would choose the newer court at the expense of the older one.

We find no significant decrease in the number of cases filed in the control group when new courts open in the vicinity. This can be explained by the fact that there are strict rules on where to file a case in Kenya and people cannot decide to file their case in another newer court.

There is also no evidence of spillovers on judges in Column (2): judges are not pulled out of the control group to be placed in the treatment group.

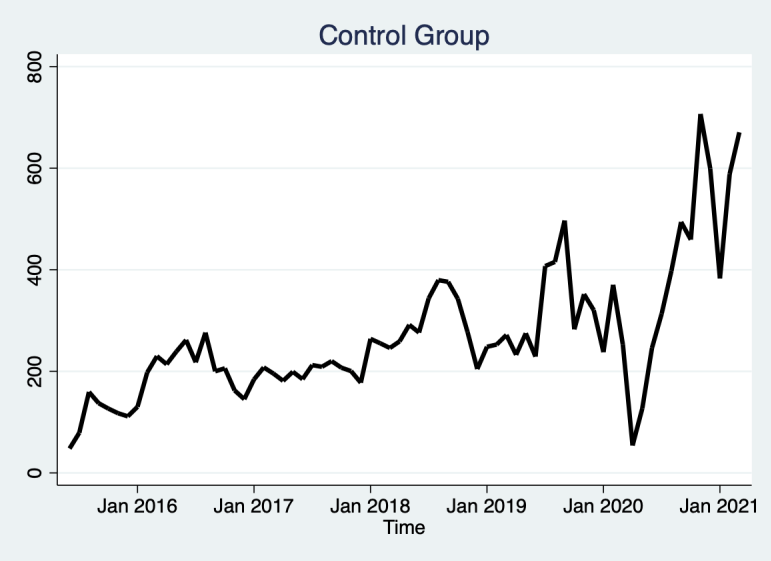
Table E1—Spillovers - Effect on the Control Group

	(1) Number Filed	(2) Number Judges
Distance to Nearest Completed Court	-0.0028	-0.00015
	(0.0036)	(0.00082)
Control Group mean	4.57	1.92
Observations	28813	28813

Note: *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors in parenthesis. The sample is restricted to the control group of courts not yet completed. In Column (1), the dependent variable is the number of cases filed per day in a court. The variable "Distance to Nearest Completed Court" is the minimum distance to the nearest completed court on every single day. In Column (2), the dependent variable is the number of judges in a court in a day. Th

Another way to look at spillovers is to look at the control group, to see whether cases are being pulled out of the control group in favor of the treatment group. Figure E1 below shows the evolution of the control group. There is no decrease in cases filed in the control group, if anything an increase.

Figure E1. Number of Cases Filed per Month



Appendix F : Start Date

One threat to endogeneity may be that the best projects in the best areas were started earlier. The treatment group will thus be completed before the control group, and be better just because it was started earlier.

This is not the case in this project. Most courts were started in the years 2016 and 2017. When we restrict the sample to courts started in the same year (i.e., 2016 or 2017), we get very similar result in Columns (2) and (3) of Table F1. This means that even conditioning on the start year of the court building does not affect the result.

Table F1—Start Date

	(1)	(2)	(3)
Dep Var	Number Filed	Number Filed	Number Filed
Sample	All	Start: 2016	Start: 2017
$CompletedCourt^{1+}$	3.15**	3.60**	8.39***
	(1.51)	(0.98)	(1.37)
$CompletedCourt^{0}$	1.38***	1.87	-0.23
	(0.48)	(1.19)	(1.19)
$CompletedCourt^{-1}$	0.61	1.18	0.85
	(0.46)	(0.90)	(0.98)
Control Group mean	4.57	4.57	4.57
Observations	33602	6599	3421

Note: *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors in parenthesis. In all columns, the dependent variable is the number of cases filed per day in a court. In Column (1), the sample includes all the courts, planned or completed. In Column (2), the sample is restricted to courts that got started in 2016. In Column (3), the sample is restricted to courts that got started in 2017.

Appendix G : Corruption

Recall that the reasons for delays are not related to corruption. There were several audits and financial reviews of the Project and none came to a conclusion of corruption in relation to any contractor/construction project.[25] In one project, there was no corruption but "the contractor did not reinvest the project money into the contract".[26] It resulted in his breaching of his contract obligations hence why he was terminated. In Column (1), we exclude that project from the analysis. Table G1 shows that the result still holds. None of the other delays are related to corruption issues.

Table G1—Number of Cases Filed - Excluding Kibera

	(1)
	Number cases filed Excluding Project- With Reinvestment Issues
$CompletedCourt^{1+}$	2.97*
	(1.52)
$CompletedCourt^{0}$	1.26**
	(0.47)
$CompletedCourt^{-1}$	0.53
	(0.44)
Control Group mean	4.57
Observations	32297

Note: *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors in parenthesis. The dependent variable is the number of cases filed per day in a court. The sample excludes the project with reinvestment issues.

Moreover, we test for parallel trends in corruption levels before the treatment. We use the three questions on corruption in the Court User Survey in Table G2. There are parallel trends for these three questions before the court building program.

[25] Information from interviews with the JPIP team.
[26] Information from interviews with the JPIP team.

Table G2—Parallel Trends on Corruption

	(1) Bribe?	(2) Judges not involved in corruption	(3) Judicial Staff not involved in corruption
Completed Court	0.03	0.02	0.17
	(0.07)	(0.19)	(0.25)
Ever Completed Court	0.07	0.04	0.18
	(0.07)	(0.12)	(0.19)
Observations	3,996	3,110	3,014
Year FE	YES	YES	YES
Court FE	YES	YES	YES
Mean Dep Var	0.86	1.89	1.85
(SD)	0.31	0.87	0.97

Note: Note: Robust standard errors, clustered at the level of the court. *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. In Column (1), the dependent variable is the answer to the question "Did you give a bribe/unofficial payment/any favour in order to get service?" (answers on a 4 point scale: 0: Strongly Disagree, 1: Disagree, 2: Agree, 3: Strongly Agree). In Column (2), the question is: " Judges/Magistrates/Kadhis are not involved in corruption". In Column (3), the question is: "Judicial Staff are not involved in corruption".

Appendix H : Robustness Checks

In table H1 below, we exclude one by one the sources of delays, to see if the results still hold.

In Column (1), the sample excludes courts delayed for reasons of adverse weather conditions. The results still hold, even with those courts excluded. The rest of the table shows that the effect is still significant, excluding any other sources of delays. Thus, the results do not hinge on one particular source of delays.

Table H1—Number of Cases Filed - Excluding Sources of Delays

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Excluding:							
				Contractor Issues:			Slow Release of Funds:	
	Weather Conditions	Ground Conditions	Personal Circumstances	Management	Technical	Other	National Treasury	Lack of financial capacity
$CompletedCourt^{1+}$	3.95**	3.17*	3.46**	3.33*	2.35*	3.23*	2.69**	3.19**
	(1.66)	(1.61)	(1.61)	(1.76)	(1.31)	(1.57)	(1.24)	(1.52)
$CompletedCourt^{0}$	1.45**	1.35**	1.37**	2.00***	1.10*	1.67***	1.46**	1.34**
	(0.56)	(0.55)	(0.56)	(0.53)	(0.56)	(0.44)	(0.58)	(0.50)
$CompletedCourt^{-1}$	0.48	0.39	0.43	1.31**	0.59	0.69	-0.13	0.64
	(0.44)	(0.49)	(0.48)	(0.50)	(0.59)	(0.48)	(0.40)	(0.46)
Control Group mean	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57
Observations	30742	30208	31461	26745	29993	30215	21679	32269

Note: *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors in parenthesis. The dependent variable is the number of cases filed per day in a court. In Column (1), the sample excludes courts delayed for adverse weather conditions. In Column (2), the sample excludes courts delayed for unsuitable ground conditions. In Columns (3) to (6), the sample excludes courts delayed for contractor issues (personal circumstances in Column (3), management issues in Column (4), technical capacity issues in Column (5), and other issues (resettlement and small size of plots) inn Column (6)). In Columns (7) and (8), the sample excludes courts delayed for slow release of funds (national treasury in Column (7), and lack of financial capacity in Column (8)).

Appendix I : Effect on Nature of Filed Case

Table I1 below shows more personal injury cases in Column (1) (albeit with a violation of the pre-trend), no effect on family cases in Column (2) and no effect on the residual category "other civil" cases in Column (3).

The other columns show criminal cases. There are no effect on violent cases (such as murder) in Column (4), more cases against state regulations[27] in Column (5), more cases of disturbance[28] in Column (6), no effect on drug-related cases, more cases filed of a sexual nature in Column (8), no effect on fraud cases in Column (9), and and no effect on the residual category "other criminal" cases in Column (10).

[27]such as County Government By-laws related matters, Offenses against Energy Act (eg Unauthorized, fraudulent or improper supply or use of electrical energy), Offense against labour laws (i.e failing to pay NSSF, NHIF etc.) , Offense against Liberty i.e. Kidnapping & Abduction (Penal Code Sec 254-266A), Offenses against Morality (e.g. Detention for immoral purposes, Unnatural offences, Indecent practices) , Offences against the Public Procurement and Disposal Act, Offences allied to morality including prostitution, bigamy, marriage with fraudulent intent, Offences relating to alcoholic drinks control and licensing Act, Offences under Betting, Lotteries & Gaming Act. (e.g. Betting in unlicenced betting premises), Offences under Customs & Excise Act (e.g. Being in possession of uncustomed goods), Offences under pharmacy and poisons Act, Offenses against Pharmacy & Poisons Act (e.g. Being in Possession of Part I poisons), Offenses against Veterinary Surgeons & Veterinary Para-Proffesional Act (e.g. Unlawfully Practising Veterinary Medicine), Offenses under False Pretences (e.g. Obtaining, Bad Cheques, Cheating), Offenses under National Police Act, Offenses under Public Health Act).

[28]such as Creating disturbance, affray, unlawful assembly and riots, and other offenses against public tranquillity; Criminal negligence, recklessness, nuisances; Creating disturbance.

Table I1—Effect on Nature of Filed Case

	(1) Personal Injury	(2) Family	(3) Other Civil
$CompletedCourt^{1+}$	0.35**	-0.025	-0.28
	(0.14)	(0.049)	(0.19)
$CompletedCourt^{0}$	0.20*	-0.052	-0.21
	(0.11)	(0.033)	(0.13)
$CompletedCourt^{-1}$	0.14**	-0.023	-0.22*
	(0.057)	(0.025)	(0.12)
Control Group mean	0.14	0.095	0.36
Observations	33602	33602	33602

	(4) Violent	(5) State Regulations	(6) Disturbance	(7) Drugs	(8) Sexual	(9) Fraud	(10) Other Criminal
$CompletedCourt^{1+}$	0.14	1.72*	0.13**	0.036	0.24**	0.00087	-0.36
	(0.13)	(0.94)	(0.060)	(0.031)	(0.12)	(0.016)	(0.48)
$CompletedCourt^{0}$	0.070	1.02**	0.15***	0.026	0.10	0.0037	-0.67*
	(0.071)	(0.43)	(0.040)	(0.027)	(0.075)	(0.0089)	(0.37)
$CompletedCourt^{-1}$	-0.0017	0.34	0.29	0.028	0.059	0.0055	-0.73**
	(0.053)	(0.22)	(0.20)	(0.030)	(0.046)	(0.0055)	(0.29)
Control Group mean	0.41	0.71	0.16	0.14	0.11	0.029	1.11
Observations	33602	33602	33602	33602	33602	33602	33602

Note: *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors in parenthesis.

Appendix J : Parallel Trends on Court User Satisfaction

To undertake a balance test, we focus on courts that got completed in between 2017 and 2019. For these courts specifically, the period between 2015 and 2017 can be used for a pre-trends test.–

We define a variable "Completed Court * After" equal to 1 for these courts that got completed in 2019, 0 otherwise. We also define a variable "Completed Court * Before" equal to 1 for these courts in 2017, 0 otherwise. If that coefficient is significantly different from zero, it would mean that courts were on different trends before the courts were completed, which would cast doubt on the analysis. This variable thus measures whether there was a differing trend for these courts before they got completed.–

Table J1 below shows the results. The important finding is that none of the coefficients of "Completed Court * Before" are significantly different from zero. Therefore, we conclude that treated and control courts were on parallel trends before the treatment.

Note that two variables are missing in the 2015 wave and are thus excluded from this balance test (namely "Court room space is adequate" and "Court rooms are clean").

Table J1—Parallel Trends on Court Infrastructure

	(1) Court rooms safe	(2) Court building easy to find	(3) Easy to locate court rooms	(4) Registry space is adequate	(5) Waiting area	(6) Facilities for disabled	(7) Court Building Index
Completed Court * After	0.29*	0.18	0.24	0.57**	0.79***	0.62***	0.42***
	(0.15)	(0.18)	(0.17)	(0.23)	(0.22)	(0.15)	(0.14)
Completed Court * Before	-0.08	-0.12	-0.17	0.09	-0.01	0.30	-0.02
	(0.20)	(0.17)	(0.17)	(0.24)	(0.20)	(0.29)	(0.15)
Observations	3,912	4,008	3,980	3,514	3,903	3,582	4,138
Year FE	YES	YES	YES	YES	YES	YES	YES
Court FE	YES	YES	YES	YES	YES	YES	YES
Mean Dep Var	1.90	2.01	1.93	1.43	1.53	1.19	1.71
(SD)	0.85	0.84	0.83	0.93	1.07	0.98	0.58

Note: Robust standard errors, clustered at the level of the court. *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. In Column (1), the dependent variable is the answer to the question "The court rooms are safe" (answers on a 4 point scale: 0: Strongly Disagree, 1: Disagree, 2: Agree, 3: Strongly Agree). In Column (2), the question is: "The court building was easy to find and Signages are well displayed". In Column (3), the question is: "It was easy to locate registry, court rooms & other facilities within the Court". In Column (4), the question is: "The registry space is adequate". In Column (5), the question is: "There were sufficient sitting spaces in the waiting areas". In Column (6), the question is: "There is adequate provision of facilities for persons living with disabilities the building ". In Column (7), the dependent variable is the unweighted mean of the first 8 variables.

Appendix K : Effect on Court User Satisfaction

We look at the effect on court user satisfaction with cells in the court.

In Column (1) of Table K1, the first question is: "There is no congestion in the court cells" (answers on a 4 point scale: 0: Strongly Disagree, 1: Disagree, 2: Agree, 3: Strongly Agree).

In the control group, people answer on average 1.23 (the answers can vary between 0 and 3). After a court is completed, the answers increase by 0.40. The court building is thus accompanied with a significant increase in satisfaction with congestion in court cells.

The rest of the table shows significant improvement in satisfaction with the cleanliness of cells and adequate sanitation facilities in cells.

Table K1—Effect on Court Cells

	(1) No congestion in court cells	(2) Court cells are clean	(3) Court cells adequate sanitation facilities
Completed Court	0.40**	0.16	0.35*
	(0.16)	(0.18)	(0.20)
Observations	1,992	2,023	1,972
Year FE	YES	YES	YES
Court FE	YES	YES	YES
Mean Dep Var	1.23	1.32	1.08
(SD)	1.02	0.97	0.96

Note: Robust standard errors, clustered at the level of the court. *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. In Column (1), the dependent variable is the answer to the question "There is no congestion in the court cells" (answers on a 4 point scale: 0: Strongly Disagree, 1: Disagree, 2: Agree, 3: Strongly Agree). In Column (2), the question is: "The court cells are clean". In Column (3), the question is: "The court cells have adequate sanitation facilities".

Appendix L : Robustness Check with other radii

Table L1 below shows that the results are largely the same with other radii, i.e., investment increase for firms in contract-intensive sectors after a court is completed. Column (1) replicates the main finding of the paper, while the other columns vary the radius.

Table L1—Other radii

	(1)	(2)	(3)	(5)	(6)
	50	40	45	55	60
Completed Court	158.50***	176.24**	192.75**	134.09***	61.89*
	(60.55)	(78.10)	(75.65)	(46.28)	(33.44)
Ever Completed Court	-9.42	-3.82	-5.31	-7.75	2.87
	(11.23)	(13.58)	(13.33)	(11.41)	(20.00)
Observations	254	253	253	254	254
Year FE	YES	YES	YES	YES	YES
Mean Dep Var	171.2	171.2	171.2	171.2	171.2
(SD)	1094	1094	1094	1094	1094

Note: *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors in parenthesis. In all columns, the dependent variable is capital stock per worker, equal to the cost for the establishment to repurchase all of its machinery divided by the number of workers, using PPP exchange rates, in thousand dollars, and trimmed at 1 percent, i.e. 13,000. The sample is restricted to contract intensive firms. The variable "Completed Court" is equal to 1 if a court has been completed in a radius of 50km in Column (1), 0 otherwise. The radius is: 40, 45, 55, and 60 km in the next columns.

Appendix M : Robustness Check with County Fixed Effects

Table M1 below shows that the results when including county fixed effects and clustering the standard errors at the county level. The results are exactly the same.

Table M1—Effects of Court Completion on Firms

	(1)	(2)	(3)	(4)
Dep Var:	Perception Courts	Investment	Investment	Investment
Sample:	All firms	All firms	Contract Intensive	Not Contract Intensive
Completed Court	0.30**	74.83**	148.17**	21.09
	(0.13)	(29.03)	(56.94)	(44.64)
Observations	1,348	566	254	306
County FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Mean Dep Var	2.237	178.8	171.2	189.3
(SD)	0.964	859.3	1094	604.2

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors, clustered at the level of counties. The regressions all include county and year fixed effects. In Column (1), the dependent variable is the answer to the question "Do you agree with the following statement: The court system is fair, impartial and uncorrupted?" on a 4-point scale where 1 is Strongly disagree, 2 is Tend to disagree, 3 is Tend to agree and 4 is Strongly agree. The variable "Completed Court" is equal to 1 if a court has been completed by 2018 in a radius of 50km, 0 otherwise. "Ever Completed court" is equal to 1 if a court has ever been completed in the area. In Column (2), the dependent variable is capital stock per worker, equal to the cost for the establishment to repurchase all of its machinery divided by the number of workers, using PPP exchange rates, in thousand dollars, and trimmed at 1 percent, i.e. 13,000. In Column (3), the sample is restricted to contract intensive firms. i.e., in a sector above the median in the indicator proposed by Nunn (2007). In Column (4), the sample is restricted to the other firms, in non contract intensive sectors.

Appendix N : Court Building and Investment Climate

Table N1 below replicates the analysis controlling for investment factors, but including all firms.

The effect of court building remains significant in all columns, except in Column (2) when controlling for the practices of competitors in the informal sector. The size of the coefficient remains large, not statistically different from the other coefficients of court building in other columns.

Table N1—Effects of Court Completion on Investment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample:	All firms									
Completed court * 2018	64.16*	58.43	65.56*	71.23*	64.43*	65.32*	67.33*	68.21*	66.51*	69.05*
	(35.66)	(36.16)	(37.47)	(36.69)	(36.14)	(37.46)	(36.92)	(37.35)	(36.80)	(36.69)
Completed court	-6.55	-2.24	-7.42	-7.16	-6.02	-8.25	-8.79	-10.96	-7.19	-8.25
	(9.04)	(9.29)	(9.00)	(9.01)	(8.98)	(9.33)	(9.38)	(10.03)	(8.86)	(9.17)
Obstacles:										
Tax Rates	-5.67									
	(5.42)									
Practices Competitors Informal Sector		-14.46***								
		(5.21)								
Corruption			-7.11							
			(5.29)							
Electricity				8.19						
				(7.65)						
Access To Finance					-3.47					
					(4.75)					
Tax Administrations						-10.39*				
						(5.42)				
Business Licensing And Permits							-3.99			
							(5.72)			
Crime, Theft And Disorder								11.23		
								(9.42)		
Labor Regulations									2.12	
									(5.63)	
Inadequately Educated Workforce										3.89
										(5.37)
Observations	564	561	560	564	565	561	564	564	562	566
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Mean Obstacle	1.874	1.777	1.775	1.595	1.494	1.489	1.235	0.952	0.934	0.897
(SD)	1.202	1.239	1.355	1.161	1.172	1.172	1.103	0.964	0.943	1.014

Note: *** Significant at 99 percent, ** Significant at 95 percent, * Significant at 90 percent. Robust standard errors, clustered at the level of the county. In all columns, the dependent variable is capital stock per worker, equal to the cost for the establishment to repurchase all of its machinery divided by the number of workers, using PPP exchange rates, in thousand dollars, and trimmed at 1 percent, i.e. 13,000. The sample includes all firms. The variable "Completed Court" is equal to 1 if a court has been completed by 2018 in a radius of 50km, 0 otherwise. "Ever Completed court" is equal to 1 if a court has ever been completed in the area.