Does Access to the Legal System Increase Investment? Evidence from a Randomized Experiment in Kenya

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The legal system enforces contracts and secures property rights, thereby increasing the incentives to exert effort, invest, access credit, and grow. This paper presents the first randomized experiment testing this theory. In a setting with very low access to formal institutions but with many land disputes, we gave access to the legal system to a treatment group by offering the services of a free lawyer for 2 years. In line with the theory, effort on land (measured by days worked) increased by 15 percent in the treatment group versus the control group. Investment increased by 21 percent, access to credit increased by 56 percent, and agricultural production increased by 42 percent.

Suppose an investor produces an output that can then be appropriated by a powerful individual or government, called the "expropriator". In the absence of any sanctions, the expropriator cannot credibly commit to not expropriate, and the investor does not invest. This outcome is inefficient since no production takes place and there is nothing to expropriate (**?**). One solution is a legal system sanctioning in case of expropriation and protecting the interests of the investor. As such, contract enforcement mechanisms and the rule of law are thought to be central to the process of economic development (North, 1990; Acemoglu and Robinson, 2013; Djankov et al., 2003; LaPorta et al., 2004). A limit to this argument is that if expropriators are powerful enough to appropriate goods, they might also be powerful enough to subvert the courts (Glaeser, Ponzetto and Shleifer, 2016). Moreover, existing informal institutions and private arrangements might be more efficient at resolving disputes than the formal legal system (Acemoglu and Johnson, 2005). Ultimately, whether the legal system is a fundamental driver of economic growth or not is an empirical question.

Empirically, it is very difficult to establish the causal effect of the legal system on economic

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growth for two reasons. First, countries that develop high-quality legal institutions also tend to develop other high-quality institutions or policies, which can similarly affect growth. It is difficult to disentangle the effect of the legal system from all these other (potentially unobserved) influences. Second, high-quality legal institutions may be by-products, not causes, of development. To address these endogeneity issues, researchers have resorted to natural experiments in which they examined judicial reforms implemented in certain places at certain times in a difference-in-differences framework to isolate the causal impact of judiciaries on economic activity (Chemin, 2009*b*,*a*, 2010; Kondylis and Stein, 2017; Lilienfeld-Toal, Mookherjee and Visaria, 2012; Lichand and Soares, 2014), and have found large positive effects of the judiciary on investment, access to credit, and economic growth. Yet, the question remains as to why judicial reforms were implemented in certain places at certain times. If they were implemented by reform-minded leaders in areas with relatively higher economic growth, then a difference-in-differences analysis may just capture those trends, not the causal impact of judiciaries. Empirical evidence on the legal system is needed; yet, a recent systematic review of the topic laments the lack of causal evidence on the topic (Aboal, Noya and Rius, 2014). The ideal experiment to answer this question would randomly give access to the legal system to some investors engaged in disputes with expropriators, while other investors in a control group would have no access to the legal system. An increase in effort, investment, or production on the part of investors in the treatment group would be evidence that legal systems, despite their potential capture by expropriators, have a positive effect over and above informal institutions.

Our paper is the first to undertake this experiment by offering the free services of a lawyer for two years to a randomly selected treatment group in a setting with many disputes but low access to formal legal institutions: rural Kenya. In rural Kenya, as in Sub-Saharan Africa in general, most people are small-scale farmers working and investing on their plot of land. Property rights are insecure, most plots are affected by disputes, and the incidence of disputes is growing over time (Migot-Adholla, Place and Oluoch-Kosura, 1994; Bruce and Migot-Adholla, 1994; Aliber and Walker, 2006; André and Platteau, 1998; Banerjee, Gertler and Ghatak, 2002; Chapoto and Jayne, 2008; Deininger and Castagnini, 2006; Goldstein and Udry, 2008; Yamano and Deininger, 2005). Yet, very few disputes are brought to formal institutions because people find it too expensive to access them (Yamano and Deininger, 2005). Land disputes may severely dampen the incentives to invest and work.

To assemble the list of disputes, we conducted door-to-door visits to every household in an area around our offices to ask about on-going disputes. A team of seven paralegals asked for official documentation to establish the legality of the claims. Only individuals with a valid legal claim were

entered as participants in this project. Individuals with no proof, or trying to illegally appropriate land, were not entered as participants since the goal was not to harass others with frivolous and invalid claims. A typical dispute consists of a farmer with a legitiamte claim to the land, but whose land is encroached or grabbed illegally by another individual. In this kind of dispute, the former individual is the investor, while the latter is the expropriator. The intervention consisted in offering legal services to the investor, not the expropriator. The objective is to test whether giving the investor (not the expropriator) access to the legal system will increase the incentives to exert effort and invest.

This process led to a sample of 339 individuals with some form of documentation backing up their claim[1]. 191 participants were randomly selected to be part of the treatment group while 147 formed the control group. In the treatment group, 1078 total meetings were organized to resolve the disputes. The lawyer followed the protocol taught in Kenyan law school. She tried first to reach an out-of-court agreement (mediation, arbitration). If this failed, she implemented formal legal procedures in court. In each case, the lawyer used her knowledge of the law to resolve disputes, helped the participant to navigate the numerous and complex steps of the judiciary, and ensured the enforcement of decisions taken by the courts. In ten cases in the treatment group, the lawyer realized after numerous meetings that the participant had no legal claim, and was actually attempting to illegally appropriate the land of others. In those ten cases, the intervention was stopped. To the extent that these ten observations are included in the treatment group yet did not receive the treatment, our intent-to-treat analysis will thus represent a lower bound on the incentive effects of access to the legal system. In the control group (no access to the free lawyer), people were of course free to hire their own lawyer; in fact, we gave them a list of legal aid organizations giving pro-bono lawyers to poor people. People could also access numerous informal institutions available to resolve disputes: chiefs and local officials. The goal of our experiment was to study the lives of individuals in the treatment versus control group to understand how and whether people resolved their disputes, and the effects on incentives to work and invest. To do this, we collected a baseline survey in 2013-2014 prior to randomization, and an endline survey 2 years later on all households examining effort, investment, access to credit, and output.

We first checked that our intervention increased the probability to meet with a lawyer. In the treatment group, 85 percent of individuals had at least one meeting with a lawyer, compared to only 14 percent in the control group. These figures confirm that it was very difficult for people in the control group to afford a lawyer, or get pro-bono lawyers from legal aid organizations.

[1]Though many respondents did not possess formal title deeds in their own names, they did have titles in the name of their now-deceased father; in rural Kenya, succession is often carried out informally between siblings.

Our intervention significantly increased the probability to resolving a dispute. In the treatment group, 39 percent of cases were resolved in some way (case won, case lost, out of court settlement) after 2 years, compared to only 3 percent in the control group. Even if cases were not completely resolved, resolutions were well on their way to becoming finalized in our treatment group.

Our intervention thus fostered access to the legal system, which, in most cases, prevented illegal land encroachment. Exactly in line with the theory linking contract enforcement and economic growth, we found that treated households worked more and invested more. Two years after the start of the intervention, treated households had increased the number of days worked on their plot by 15 percent compared to control households. Investment increased by 21 percent. Access to credit to finance long-run productive investments (set up a business, or agricultural and human capital investment) increased by 56 percent in the treatment versus the control group. Agricultural production increased by 42 percent. Overall, we find that the benefits of this intervention are twice its costs, pointing to large economic effects resulting from increased access to the legal system.

These results were not obvious since the counterfactual was not a state of no dispute resolution mechanisms. In the control group, people had access to alternative mechanisms (chiefs and local officials). The issue with these alternative mechanisms was that the resolution rate was extremely low (only 3 percent). One explanation is that informal institutions are headed by powerful individuals, who are likely to be connected to the very same powerful expropriating family members or neighbors. In one of our cases, the chief was himself a potential buyer of a piece of land in a succession case where our plaintiff was threatened with eviction, which created an obvious conflict of interest and blocked the resolution of the case. Our results are important since they show the value of formal over informal institutions, which is an open debate in the literature on institutions and economic performance (see for example Mokyr, 2008).

Our results confirm the fundamental importance of the legal system in the process of economic development. Recent work on the importance of institutions has emphasized the role of an unbiased legal system as an inclusive economic institution critical in the process of growth (Acemoglu and Robinson, 2013). According to North (1990), "the inability of societies to develop effective, low cost enforcement of contracts is the most important source of both historical stagnation and contemporary underdevelopment". Yet, empirically, it has been very difficult to establish the causal impact of contract enforcement mechanisms on growth: exogenous variation in institutions is hard to come by, and since institutions are slow changing, historical data is often required but difficult to obtain. We circumvent these issues by randomizing access to the legal system in a place with low access to start with. Our results strongly support the institutions theory: in line with North (1990)

and Acemoglu and Robinson (2013), we find that the legal system spurs economic development.

Our paper is the first randomized experiment evaluating the impact of lawyers on the incentives to exert effort and invest. In the US, Greiner and Pattanayak (2011); Greiner, Pattanayak and Hennessy (2012); Seron et al. (2001); Stapleton and Teitelbaum (1972) have undertaken similar randomized experiments offering free representation. In these studies, the outcome of interest is the win rate. In our paper, we ask a different question: what is the effect of a lawyer on the subsequent incentives to exert effort and invest? Our paper thus directly tests the theory that the legal system shapes economic activity.

One issue with randomized experiments is external validity: increasing access to the legal system may not have the same effects in other contexts. Interestingly, our results are very close to those found in other contexts, using a variety of methodologies, in the burgeoning literature on the causal effects of the legal system on economic activity. In Liberia, Sandefur and Siddiqi (2013) offered paralegals to a randomly selected treatment group, which increased food security, and household well-being. In Liberia, Blattman, Hartman and Blair (2014) offered training on alternative dispute resolution mechanisms, and found less land disputes. Our findings are also very similar to the literature using natural experiments to measure the effects of policies granting better access to courts. In Brazil, Lichand and Soares (2014) find that setting up special civil tribunals increased the incentives to start up a business by 10 percent. In India, Lilienfeld-Toal, Mookherjee and Visaria (2012) find that setting up debt recovery tribunals increased access to credit by 40 percent in the long-run, very close to our estimates. In Senegal and Pakistan, Kondylis and Stein (2017) and Chemin (2009*b*) find that more efficient judiciaries increased access to credit. Overall, the accumulation of evidence using different methodologies in different contexts all points towards positive effects of the legal system on economic activity. We confirm and extend this literature by providing the first randomized experiment on access to the legal system through the use of lawyers.

Our paper also contributes to the extensive literature relating the security of property rights to investment. In a review of the literature, Place (2009) finds that evidence for the impact of land titles on investments is mixed, with some studies showing positive or negative results. This has been a puzzle for researchers. Theoretically, few economists disagree on the importance of the security of property rights; yet, the evidence on land titles is thin, and most people do not bother collecting their titles, and do not pass it on at inheritance (Aliber and Walker, 2006). Our explanation for this puzzle is that titles depend on the legal system for their enforcement. If the legal system is inaccessible (as is the case in this study), there are few incentives to hold a formal title, a similar argument to the one developed in Glaeser, Ponzetto and Shleifer (2016).

Another explanation for the mixed findings of the existing literature is that endogeneity issues were not properly controlled for. In a recent randomized experiment on demarcation, Goldstein et al. (2016) finds that demarcating the land (during which land disputes are discussed and settled in the presence of stakeholders) causes a 40 percent increase in long-term investments on the land, similar to the effects found in our paper.

It is difficult to draw policy implications from our paper since our result is a partial equilibrium one, in a small sample. If this intervention was scaled up, and a free lawyer was offered to all households in need, this could clog the courts, which would negate any positive effects found. Chemin (2017) finds that reforms improving access to the legal system must be coupled with simultaneous improvements in court efficiency to generate an effect on economic outcomes. In any case, the purpose of our paper was not to formulate policy implications, but to test a theory: whether or not access to the judiciary increases the incentives to work and invest. We find support for this hypothesis in our paper.

The rest of the paper is organized as follows. Section I provides a conceptual framework for the role of the legal system in resolving disputes and affecting the incentives to work and invest, which informs the design of the experiment. Section II provides some background on the setting, i.e., the types of disputes encountered, the prohibitive lawyer fees, and the informal institutions. Section III presents the experimental design. Section IV presents the intervention, i.e., what the lawyer does. Section V the results. Section VI discusses those results, while section VII concludes.

I. Conceptual framework

A. The commitment problem

To understand the likely effects of the judiciary on economic activity, we follow Besley and Ghatak (2009). Our contribution is to model explicitly the role of the judiciary within this framework. An investor (a farmer or an entrepreneur) exerts effort $e \in [0,1]$, of which he has an endowment $\bar{e}$. This yields output A with probability $\sqrt{e}$, and 0 with probability $1-\sqrt{e}$. Thus, output produced is $A\sqrt{e}$. e can also be understood as an investment in a standard production function. For simplicity, the utility function u of the investor is linear in consumption c and leisure l, such that $u(c,l) = c+l$. We thus abstract from any risk-aversion effects. The investor 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 $e^* = \left[\frac{A}{2}\right]^2$. At this effort level, the output produced is $\frac{A^2}{2}$. Once this effort level has been sunk and output has been produced, a powerful individual or government (called the "expropriator") expropriates the farmer and confiscates output $\frac{A^2}{2}$. Anticipating this expropriation, the investor does not exert effort, and there is no output to expropriate.

This outcome is inefficient, since any level of expropriation lower than the full amount would benefit both parties. The investor would work more, and the expropriator would get some revenue. Yet, the fundamental issue is that the powerful individual cannot credibly commit to not expropriate the whole amount: once the output has been produced, there are very strong incentives to capture the entire amount considering there are no constraints on power. Thus, equilibrium effort level is zero, because of this commitment problem. The institutions theory argues that countries that develop institutions addressing this commitment problem grow rich, while the other countries stay poor. Institutions are at the heart of economic development (Besley and Ghatak, 2009; Acemoglu, Johnson and Robinson, 2001).

Our contribution in this paper is to focus on the role of the judiciary, and provide a randomized experiment to test this theory.

B. A solution: the judiciary

One solution is access to the judiciary. If the powerful individual or government expropriates, the investor can sue and recover (part of) the amount grabbed. Knowing that more of the output is secure, the investor will exert more effort. This may even deter the powerful individual from expropriating in the first place. The judiciary solves the commitment problem, and economic growth takes off. Of course, if the judiciary can be influenced by the powerful individual or government, this reasoning does not hold. Thus, it is unclear from a purely theoretical standpoint whether the judiciary can really affect growth.

A theoretical model is important to clarify the experimental design used in this paper. To model the judiciary in the simplest way, we assume that a judgment is made in favor of the investor with probability p, after time T. p is less than 1: it is possible that the courts will rule against the plaintiff if they are of low quality (e.g., judges can be influenced by the defendant). The characteristics (p, T) of courts are taken as exogenous for now, and are endogenized in a section on general equilibrium effects in the Appendix.

With probability p, the investor wins the case and recovers the output grabbed. If the investor's discount factor is β, the net present value is a fraction β^T of the output produced. With probability

$1-p$, the investor loses the case, and gets nothing.

On the cost side, the investor must pay legal fees (lawyer's fee, court fees, enforcement costs), equal to a proportion l_p (p for plaintiff) of the value of the case.[2] Overall, the investor recovers a fraction $p\beta^T - l_p$ of the output if he sues. The investor sues if and only if the fraction recovered is greater than the fraction recovered under full expropriation and no judiciary (i.e., 0):

$$p\beta^T - l_p \geq 0 \tag{1}$$

Of course, the counterfactual may not be a situation with no contract enforcement mechanisms since there may indeed be well-functioning informal institutions resolving disputes in a speedy, unbiased and accessible manner. We describe in more detail in the section below the informal institutions in the context of our experiment.

The suing condition (1) shows that an exogenous decrease in legal fees l_p would increase the incentives to sue, thereby increasing the fraction of the output recovered and the incentives to produce.

This influences in turn the decision made by the expropriator to expropriate. The gain from expropriating is to capture the value of the good produced. In this case, the investor sues, and with probability p after time T, the expropriator must repay this amount. The expropriator must also incur the legal fees of defendants, equal to a proportion l_d (d for defendant) of the value of the case. The total costs of being sued are: $p\beta^T + l_d$. Thus, the expropriator does not expropriate if the costs of expropriating are greater than the gain:

$$p\beta^T + l_d \geq 1 \tag{2}$$

This represents the basic trade-off faced by the expropriator: they should not expropriate if the costs of being sued exceed the value of the output to be expropriated. If this condition holds, then the expropriator does not expropriate, and the investor does not need to sue, and exerts maximal effort $e^* = \left[\frac{A}{2}\right]^2$.

Clearly, one can see that a decrease in legal fees (l_d) for the expropriator would reduce the costs of expropriating, thereby giving more incentives to expropriate and reducing the incentives of the

[2]Kenya has an each-party-pays system. This was confirmed in our project: in cases we won, there was no reimbursement of legal fees. We also abstract from other potential costs (stress, worries), since as explained below, this paper finds no evidence of such costs.

investor to exert effort. This informs our experiment: to increase the investor's effort, one should decrease legal fees for the investor l_p, not for the expropriator l_d . In practice, we describe in the next section how the team of paralegals differentiated between investors and expropriators by asking for official documentation to establish the validity and legality of the claims.

The two conditions (suing condition (1) and the no-expropriation condition (2)) define three regions. First, when the suing condition does not hold, the investor does not sue, and no production takes place. Second, if the suing condition holds, but not the no-expropriation condition, then the expropriator appropriates the good, and the investor sues. The output recovered is a fraction $p\beta^T - l_p$ of that good, which gives some incentives to exert effort relative to the first case. Finally, when both conditions hold, the expropriator does not expropriate, the investor does not need to sue, and exerts maximal effort.

How do judiciaries fare in the world relative to these two conditions? The "Doing Business" project gives an estimate for p, T, and l_p when enforcing a contract.[3] Local lawyers and judges are asked the cost and time it takes to resolve a hypothetical case. The quality of the judiciary is also estimated with an index ranging from 0 to 1 based on adherence to best practices in court structure, proceedings, and case managements systems. Panel (a) of Figure 1 shows $p\beta^T - l_p$ for all countries in the world. In countries in green, there are incentives to sue, i.e., $p\beta^T - l_p \geq 0$. In countries red or orange, there are no incentives to sue. The expropriator has all incentives to expropriate, and the incentives to exert effort are minimal according to the model.

Even in the green countries of Panel (a), there may be incentives to expropriate given the values of p, T, and l_p.[4] In these countries, Panel (b) shows the no-expropriation condition, i.e., $p\beta^T + l_d - 1$ for each country. Green indicates a positive $p\beta^T + l_d - 1$, while red and orange indicate a negative $p\beta^T + l_d - 1$. Panels (a) and (b) make it clear that most countries in the world are either in the first region (no incentives to sue) or in the second region (incentives to sue but also incentives to expropriate).

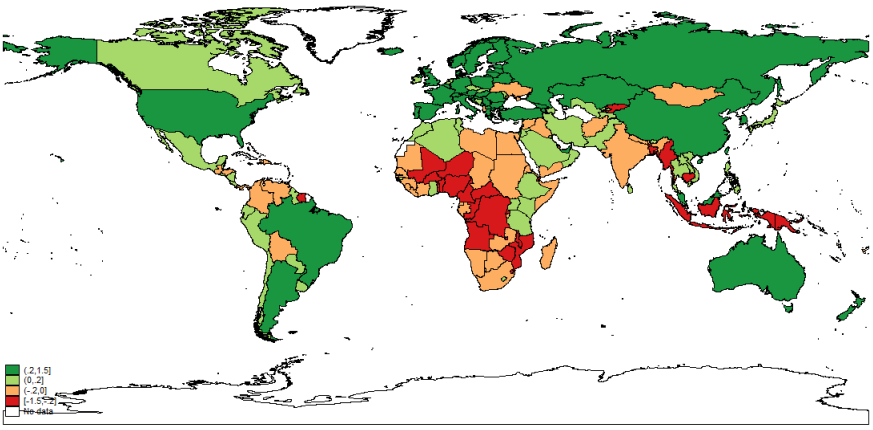
An intervention decreasing legal fees may move countries from the first to the second region. In the panel (c) of Figure 1, we elicit an environment where lawyer fees would be set to zero. As visible in this figure, an intervention offering a free lawyer would increase the incentives to sue, and thus access to the judiciary.

If there are incentives to sue, and the expropriator still decides to expropriate (most countries are in red and orange in Panel (b)), the maximization problem then becomes:

[3]See http://www.doingbusiness.org/Methodology/Enforcing-Contracts
[4]The Doing Business data does not give estimate for l_d. As a first approximation, we use $l_d = l_p$.

FIGURE 1. INCENTIVES TO SUE IN THE WORLD

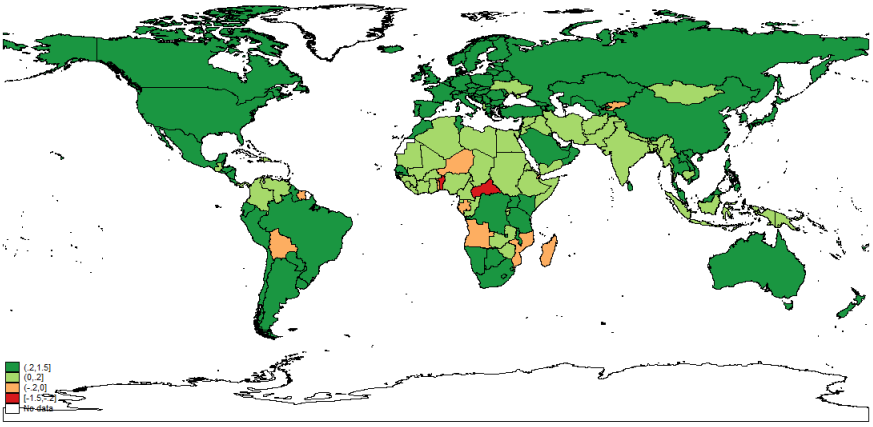
(a) Incentives to sue $p\beta^T - l_p$



(a) Incentives to expropriate $p\beta^T + l_d - 1$

Map World No renegotiation Condition.png

(c) Incentives to sue with an intervention with no lawyer fees



Note: This graph uses data from the "Doing Business" project, which gives an estimate for p,T, and l when enforcing a contract. In panel (a), l_p is the sum of lawyer fees, court fees and enforcement fees. In countries red or orange, there are no incentives to sue. Panel (b) shows the incentives to expropriate. In panel (c), lawyer fees are set to zero in the suing condition. l_p is the sum of court fees and enforcement fees.

$$max_e \quad (p\beta^T - l_p)A\sqrt{e} - e$$

Without loss of generality we set $\bar{e} = 0$. The first-order condition is: $e^* = \left[\frac{(p\beta^T - l_p)A}{2}\right]^2$. Output is $\frac{(p\beta^T - l_p)A^2}{2}$. Clearly, one can see from this expression that reducing legal fees l_p by offering the free services of a lawyer would increase effort and output, especially compared to a counterfactual with no judiciary, where there is full expropriation and no effort.[5]

Proposition 1. An exogenous decrease in l_p increases effort and investment by the investor.

A decrease in l_p may also have an effect on access to credit. The intuition is that with stronger property rights, the assets held have a higher value as collateral. Thus, a standard moral hazard model of credit predicts an increased supply of credit by the lender, and increased access to credit overall (see theoretical model in Appendix A).

Proposition 2. An exogenous decrease in l_p increases access to credit.

Overall, the theory predicts that decreasing legal fees for the investor increases effort, investment, credit, and output. We now describe the setting used to test this theory.

II. The Setting

To test this theory, one needs a setting with numerous disputes, in a place with low incentives to sue, i.e., $p\beta^T - l_p < 0$ because of very high legal fees. An intervention exogenously decreasing l_p may reverse this inequality, thereby potentially increasing the incentives to sue in court (relative to other informal institutions), invest, and exert effort. Rural Kenya provides the ideal setting to test this theory.

A. Land disputes

Land disputes are rife in Kenya. In 1963 at independence, Kenya pursued an individual land titling program. The system quickly fell into abandonment. Wills were not written, and most transactions went unrecorded. This created opportunities for succession disputes and land grabbing (Migot-Adholla, Place and Oluoch-Kosura, 1994). Migot-Adholla, Place and Oluoch-Kosura (1994) find that disputes affect 30 percent of agricultural parcels. Aliber and Walker (2006) report that

[5]Note that the expropriator also benefits: the expropriator expropriates the output, but is sued and must repay with probability p after time T, and must pay the legal fees l_d, for a net benefit of $\frac{(p\beta^T - l_p)A^2}{2}(1 - p\beta^T - l_d)$. A decrease in legal fees l_p increases the payoff to the expropriator. The intuition is that the presence of the judiciary gives incentives to the investor to produce a good of a greater value that can be expropriated, compared to a counterfactual where no production takes place because of the limited commitment issue. In this paper, we will only test the first step of this theory: i.e., does a decrease in legal fees increase effort and output for the investor?

between 33 percent and 56 percent of households have experienced threats, tensions, and attempts at expropriation related to land. The incidence of land disputes is growing in Sub-Saharan Africa, due to increased population and improved terms of trade for agriculture (Yamano and Deininger, 2005; André and Platteau, 1998; Deininger and Castagnini, 2006; Goldstein and Udry, 2008; Chapoto and Jayne, 2008). These land disputes, and the associated insecurity of property rights, may significantly dampen the incentives to exert effort, invest and innovate, as documented by an extensive literature on the topic (Place, 2009; Besley, 1995; Goldstein and Udry, 2008; Goldstein et al., 2016).

B. Prohibitive lawyer fees

Despite these numerous disputes, access to the judiciary is very limited due to high lawyer fees. In the dataset we collected and which we describe in greater detail below, respondents estimated lawyer fees to be 82 percent of a household's annual income.[6] To our respondents who had an on-going dispute, but were not using the judiciary to resolve their dispute, we asked what the main reason was for not using the judiciary. The overwhelming answer was "too expensive" in 58 percent of the cases.[7] Costs, rather than corruption or enforcement, is the biggest barrier to accessing the judiciary. This is in line with the existing literature, which documents that many disputes are not brought to formal institutions because accessing them would be too expensive (Yamano and Deininger, 2005).

C. Informal institutions

Informal institutions exist in Kenya, yet they may not work for all investors. Consider the case of one of our respondents, Sarah, which illustrates well a typical dispute as well as the informal dispute resolution mechanisms in place. Sarah is the single mother of 3 boys. She farms on her family's land (and lives at the poverty line of 2$ per day per capita). When her father died, he divided the land among his wife, seven sons, and Sarah.

Sarah's mother excluded her from the subdivision, which is illegal in Kenya, since no child can be excluded from the succession of their parents' estate. Sarah talked to the Chief, whose decision the

[6] We asked the participants their perception of lawyer fees in a hypothetical scenario: "Imagine that you have the title deed to your plot, and then your neighbor attempts to grab it. Let us say that you decide to use the judiciary. How much do you think lawyer fees would cost? How much would it cost you to try your case in the courts (excluding lawyer fees)?". They estimated lawyer fees at 1888$, and court fees at 1209$. These amounts are very large compared to the average annual household income of 2312$.

[7] Other answers were much less frequent: "I like dealing with disputes informally first, before I use formal methods of dispute resolution" (14 percent), "don't know how to access the courts" (10 percent), "too complicated" (9 percent), "the courts are corrupt" (3 percent), "my case is too minor to go to the courts" (2 percent), "don't think the court's decision will be enforced" (2 percent), and "the courts would take too long to resolve the case" (1 percent).

family did not obey. This case exemplifies the limits of informal dispute resolution mechanisms: decisions can be be difficult to enforce.

Sarah then complained to the District Officer. He turned out to be a potential buyer of a portion of that land, which created a conflict of interest. The Chiefs and local officials may be biased due to their involvement in the local community. She then talked to the District Commissioner, who stopped the succession process, and advised Sarah to go to court.

Sarah had no money for the lawyer's fee, approximately her yearly income, and the case was not taken to court.

As the case of Sarah exemplified, there are numerous existing informal institutions: elders, chiefs, and local officials. Yet, the fundamental issue with these institutions is that the people officiating are the local elite, i.e., the very same "powerful individuals" of the theoretical model. If the powerful expropriators of the model are connected in some way to the local elite rendering judgments, then these institutions will actually be detrimental for individuals not connected to the elite. In terms of the parameters of our model, the probability p of winning might be very low for unconnected individuals. This was the case in our sample: when we asked individuals having experienced disputes in the past 10 years, only 16 percent of those disputes got resolved through informal means. With low p, effort is low, even if informal institutions are fast (T low), and cheap (l_p low). Compared to this counterfactual, access to the judiciary, made possible by a free lawyer, may increase effort.

Considering the numerous land disputes, the high costs of a lawyer, and the deficiencies of informal institutions, an intervention offering the services of a lawyer for 2 years may increase access to the judiciary and increase the incentives to exert effort and invest. Of course, the same powerful expropriators who can influence informal institutions may also be powerful enough to subvert the judiciary such that no discernible effects can be measured. Ultimately, the effects of such an intervention is an empirical question.

III. Experimental design

The theoretical model predicts that an exogenous decrease in legal fees for the investor, l_p, increases effort and investment by the investor who is in a dispute with an expropriator. We first describe how we selected participants for this project. We then provide some descriptive statistics of the sample. Finally, we describe the procedure used to discriminate between investors and expropriators.

A. *Recruitment of Participants*

For our intake system, we faced the choice of initiating contact or letting the claimant initiate contact. In their experiment, Greiner and Pattanayak (2011) let the claimant initiate contact, and found that this led to the self-selection of cases most likely to win. As evidence of this, they showed that their control group had a significantly higher chance to prevail than the average claimant (65 versus 47 percent). According to Greiner and Pattanayak (2011), their treatment was "helping only those who did not need the help" (p. 2173). They hypothesized that this may have been the reason why they found no significant effect of their offer of representation on the win rate.

To avoid this selection issue of cases most likely to be won, we initiated contact with claimants to assemble the universe of disputes. In practice, we randomly selected a "location" around our offices.[8] In each location, the goal was to assemble the universe of disputes. To capture all disputes, we followed three strategies: 1) canvassing door-to-door each and every house, 2) asking respondents to refer us to people they knew were engaged in disputes, and 3) asking the local Chief or council of elders to refer us cases in the location.

When visiting each and every house door-to-door, a team of seven paralegals asked the following questions. First, "Are you currently involved in a dispute (e.g. land grabbing, succession, housing eviction, theft, etc.) that you would like to resolve? If yes, please describe." For this project, we thus focused households currently engaged in land disputes since it corresponds to the situation of the theoretical model. In any case, our lawyer could not provide help to households not engaged in disputes. Moreover, most plots are affected by disputes due to insecure property rights, as shown by the literature above.

Most of the disputes in this community involved land: 44 percent of cases were about succession, and 32 percent about land grabbing. Considering the overwhelming nature of the disputes related to land, as well as the clear theoretical link between such disputes and economic activity, we focused exclusively on such cases.

The second question asked was: "If currently involved in a dispute, are you using an advocate/lawyer to resolve the dispute?". Households answering yes were not included in the project, since the goal was not to displace existing lawyers, but to offer a lawyer to those who had none.

The third question was "If you do not have a lawyer, would you be interested in receiving free legal advice for your case?" For people answering yes, our paralegals then collected a detailed summary of the case, and screened out unacceptable cases (e.g., already had a lawyer, or barred

[8]Locations are the third level administrative subdivision in Kenya (below counties and sub-counties). Locations often, but not necessarily, coincide with electoral wards. Each location has a Chief, appointed by the state, and a council of elders.

by statute of limitations).

The theoretical model makes it clear that to increase the incentives to invest, one should decrease legal fees for the investor l_p, not for the expropriator l_d . If l_d were decreased, the expropriator would have more incentives to expropriate, which would decrease the incentives of the investor to invest. Thus, it is important to discriminate between investors and expropriators to test the theory according to which decreasing the legal fees for the investor would increase the incentives to invest.

The team of paralegals achieved this in practice by only pursuing cases where respondents were in possession of documentation attesting to the validity of their clam. The team of paralegals excluded from our sample any individual attempting to illegally appropriate some land, or making claims without supporting documentation.

At the end of the interview, we also asked our respondents to give us the phone number of people they knew may be engaged in disputes. Moreover, our paralegals used their local knowledge to contact Chiefs and councils of elders to ask if they could refer us cases. The paralegals undertook a similar data collection exercise with those respondents. Overall, the universe of acceptable cases in the randomly selected locations in a 10 kilometer radius around our Community Justice Center thus constituted the pool of participants for our research.

B. Data

The intake procedure led to a total sample of 339 households in the rural community of Kianyaga, Kenya, 2 hours north of Nairobi. The participants were small-scale farmers. The overwhelming majority of our sample were cultivating one plot of land (74 percent), and living near the poverty line of 2$ per day per capita. Table 1 below shows the basic characteristics of our respondents. Household heads had an average of 7 years of education, and only 38 percent went to high school.

Out of this sample, 191 households were randomly selected into the treatment group, and 148 into the control group.[9] For each participant, our paralegals collected a baseline survey before the randomization took place. Two years later, we collected an endline survey on the same participants. The treatment and control group's observable characteristics were balanced at baseline. Table 1 shows that the average age of the treated households was 57.03 years old, while the average age in the control group was 56.79 years old. The last column shows the difference (0.24 years). A simple t-test shows that this difference is not significantly different from zero. Overall, Table 1 shows that the treatment group is slightly older, less male, less educated, producing less agricultural

[9]We slightly over-sampled the treatment group since our lawyer was able to take on more cases than initially planned. In practice, new cases were coming in continuously as paralegals found them. When our lawyer told us she could take on more cases, we selected slightly more than 50 percent of the new cases in the treatment group.

Table 1—Balance of observable characteristics

	Treatment (N=191)	Control (N=148)	Difference (p-value)
(1) Age	57.03	56.79	0.24
			(0.89)
(2) Male	0.64	0.71	-0.07
			(0.19)
(3) Education	7.01	7.38	-0.37
			(0.48)
(4) High school?	0.38	0.39	0.01
			(0.82)
(5) Ag. prod. per day per cap (USD PPP)	1.87	2.30	-0.43
			(0.32)
(6) Land divided into formal titles	0.79	0.80	0.01
			(0.95)
(7) Last year, borrow from credit union?	0.09	0.14	-0.05
			(0.13)
(8) Last year, borrow from microfinance institution?	0.06	0.07	-0.01
			(0.71)
(9) Last year, borrow from bank / govt agency?	0.03	0.00	0.03
			(0.03)

Note: Figures compiled from baseline data. (3) measures the respondent's years of schooling. (4) is a dichotomous variable taking a value of 1 if the respondent had any years of schooling from after grade 8, and a value of 0 otherwise. (6) takes a value of 1 if the respondent lives on a homestead that is divided into any formal titles and a value of 0 otherwise. Characteristics (7), (8), and (9) each take values of 1 if the respondent took out a loan from the stated financial institution in the past 12 months.

output than the control group at baseline. A similar proportion of participants (79 percent in treatment versus 80 percent in control) live on land in which some form of formal titling has been implemented. The treatment group borrows slightly less than the control group from credit unions or microfinance institutions, but slightly more from banks. These differences are not significant, and will be controlled for in the subsequent analysis below.

Attrition was kept low. In the treatment group, 4 out of 191 households (2 percent) refused to answer the endline. In the control group, 9 out of 148 households (6 percent) refused to answer. Other respondents died, or were impossible to locate, making our final sample size 286. This differential attrition across treatment and control groups should be kept in mind for the econometric analysis. We present Lee bounds estimates below (Lee, 2009).

IV. The Intervention

The intervention consisted in offering a free lawyer for 2 years to resolve disputes. People can of course self-represent in courts if they cannot afford a lawyer. Yet, the lawyer was critical for four reasons: 1) organizing mediation sessions which were more likely to succeed because of the credible threat of initiating legal proceedings, 2) using her knowledge of the law to resolve disputes, 3) navigating the numerous and complex steps of the judiciary, which are unknown to non-specialists,

and 4) enforcing decisions taken by courts. Finally, the lawyer also proved instrumental in discovering 10 cases within the treatment group that involved some attempt to illegally appropriate land despite these precautions at the screening stage, and for which the intervention was stopped.

A. Mediating cases

Case 1 (all cases are explained in greater detail in Appendix B) entailed a boundary dispute: cement beacons demarcating plots had never been placed, and a neighbor was tending a portion of the participant's land. The participant had tried to settle the matter with his neighbor, but the neighbor did not show up at meetings with the local land registrar or the local chief. The lawyer reached out to the neighbor, sending a paralegal to his home inviting him for a mediation session. The neighbor was polite, agreed to a meeting, and showed up at the meeting despite the previous no-shows prior to the lawyer's involvement. During the mediation, both parties decided to split the cost for a surveyor to officially demarcate their land with beacons. After a process of just one month, beacons were placed on the boundary. The neighbor has since then respected the boundary. Interestingly in this case, the mere presence of our lawyer, and the potential initiation of formal legal proceedings, seems to have been instrumental in resolving the case.

Other times, mediation proved more difficult, but sometimes succeeded once the threat of going to court was made credible by the lawyer. In Case 2, we attempted mediation; yet, the defendant remained elusive, not answering our phone calls and was never at home when visited by the paralegals. After initiating legal proceedings and informing the defendant in writing of an impending hearing date in court, he became more cooperative. A successful mediation session ended in all siblings agreeing to equally split the estate, and the participant getting a title deed.

When the mediation by the lawyer failed, the judge was sometimes able to force the parties to settle out of court. In Case 3, the defendant refused to mediate. After the lawyer initiated formal legal proceedings, the judge suggested an out-of-court settlement. The defendant agreed and the parties were able to reach an agreement. In this example, the dispute had not been resolved by informal institutions. The legal system was critical into forcing a settlement.

B. Legal Reasoning

The lawyer was critical in some cases thanks to their knowledge of the law. For example, in Case 4, The lawyer used the concept of "adverse possession", under which someone who lives on and tends to land for over 12 years can claim it as their own under Kenyan Law. The intuition for this law is that 12 years is a reasonable amount of time for an absentee landlord to sort matters out.In

the absence of proof that the landlord tried to reclaim his property, the land must be transferred to the person cultivating it. The participant was unaware of this legal technicality, and the lawyer was critical in thinking about this option. In the end, the court ruled in the participant's favor, and the participant is now registered as the sole proprietor of the plot.

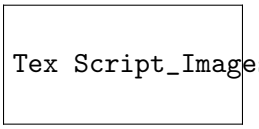
C. Navigating the Legal System

In other cases, the lawyer was critical in helping to navigate the numerous and complex steps of the judiciary.

Figure 2 summarizes all the steps involved in Case 5. The initial meeting with the lawyer took place February 2015. In June 2015, the Embu High Court ruled in the participant's favor. The case was thought to be successfully resolved, yet, this was only the beginning. The defendant appealed. Then, the case file suddenly went missing. This frequently occurs in Kenyan courts which still function with a paper-based filing system. It is also possible that the opposing party attempted to bribe a clerk to "lose" the file. This delayed the case until November 2015 when the file was recovered. At the next scheduled date, the court was not sitting. This also frequently occurs in Kenyan courts where numerous court sessions are adjourned for no apparent reason. The next hearing date was December 2015. When the lawyer came, she was told that the wrong date had been given to her. A new hearing date was given on February 2016. At that date, the lawyer was told that the case had to be transferred to the High Court of Nyeri since the case was an appeal. After several back-and-forths between the two courts to effectively transfer the case, the court ruled again in the participant's favor in September 2016.

This example shows that the lawyer was critical to navigate the system. The participant did not know how to go about this administrative process that included numerous steps, numerous courts to visit, lost files, courts not in session, and inexplicable adjournments for no reason.

Figure 2. Steps of Case 1



D. Enforcing Court Decisions

In Case 6, the judge ruled in the participant's favor but the plaintiff, likely unhappy with the outcome, was very uncooperative in signing the documents and transferring the land. The lawyer

was able to successfully petition the court to get an "Executive Officer" assigned to the case. An executive officer can sign legal documents (such as land grants) on behalf of an uncooperative party. In the interest of speedy disposal of the case, the lawyer then contacted the defendant, advising him of the turn of events, suggesting that it would be in the defendant's best interest to sign the papers as it was all but a formality at this point. Soon after, the defendant agreed to sign the documents. Thus, no executive officer was even needed in this case.

In another case of land grabbing, the court ruled in the participant's favor but the defendant refused to vacate the land in question. The lawyer threatened to call the police and the land was swiftly vacated.

The lawyer was critical in those cases to enforce the court decisions. The participants most likely do not know what "Executive Officers" are, and may be reluctant to involve the police on their own to enforce court decisions.

E. Distinguishing between investor and expropriator

Despite the precautions taken at the screening stage, ten "illegitimate" cases involving some attempt to illegally appropriate land nevertheless found their way into the treatment group. . For example, in Case A (explained in greater detail in Appendix C), the participant claimed that his brother's son took away his title deed and later sold a portion of the land without his consent. After 7 meetings, the lawyer obtained the official documentation which showed that the participant had officially gifted the land to the brother's son; and it became apparent that the participant did actually remember gifting the land and signing the document. Since the participant signed off and gave consent for the land transfer, the case had not legal merit because a valid contract had already been signed.

The appendix gives details of these ten cases, which involved people contesting legally valid transfers (cases B, C, D, E, F, G), not repaying loans and contesting the resulting seizure of the land (case H), being excluded from a succession for a justifiable reason (case I, the grandson had attempted to kill the grandmother), or having no case for a compensation since a new road was in fact not passing through the land (J).

These ten cases were closed since they would all have involved appropriating land illegally or making false claims. The team of paralegals and the lawyer only retained cases that closely followed the situation laid out in the theoretical model, i.e., an investor working the land and being threatened with expropriation by the other party, to study the incentive effects on the investor.

To the extent, that these ten observations are included in the treatment group, our intent-to-treat

analysis will thus represent a lower bound on the true effect of the treatment.

Overall, this section showed that the lawyer 1) mediated, 2) used their knowledge of the law to resolve disputes, 3) helped navigate the legal system, and 4) enforced decisions taken by courts. Still, it is possible that the control group was able to self-represent in court, or to obtain the services of a lawyer, or used informal institutions to resolve disputes in the same manner. Ultimately, whether access to a free lawyer had any effects on dispute resolution and investment behavior is an empirical question. We now present the results in the next section.

V. Results

To test the proposition that access to a lawyer increases effort, investment, access to credit and output, we estimate the following specification:

$$y_{it} = \alpha_i + \beta_1 Post_t + \beta_2 Treatment_i * Post_t + X_{it} + \varepsilon_{it} \qquad (1)$$

where i is for household i at time t, y_{it} is the particular outcome considered (effort, investment, credit, output); α_i are household fixed effects; $Post_t$ is a dichotomous variable equal to 1 if the observation is endline, 0 otherwise; $Treatment_i$ is a dichotomous variable equal to 1 if the household is treated, 0 otherwise; and $Treatment_i * Post_t$ is the interaction term. The main hypothesis tested in this paper is that β_2 is positive, i.e., our intervention increases effort, investment, credit, and output.

We also include a vector X_{it} of control variables (age, gender, education). Standard errors are robust, clustered at the level of locations. The sample was selected by randomly selecting some locations, as explained in the section above on the recruitment of participants. In that case, Abadie et al. (2017) recommends clustering at the location level. Moreover, the residuals of outcomes such as effort, investment, credit and output may be correlated within locations, since each location shares common informal dispute resolutions, i.e. the same Chief and council of elders.

We also used the exact Fisher test (Young, 2015). 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. Further, we adjusted this permutation test for multiple hypothesis testing (Anderson, 2008).

We wrote a pre-analysis plan before the endline was completed[10], specifying the outcomes we would be looking at. The first hypothesis was to check whether the intervention actually worked, i.e., whether giving a free lawyer would increase the use of a lawyer and the resolution of cases. As predicted by the theory, the four main outcomes are: effort, investment, credit, and output. Finally, we added another set of potential side effects, not strictly predicted by economic theory: physical violence, stress and worries.

A. Effects on Dispute Resolution

In the control group, at endline, only 14 percent of households reported having met with a lawyer during the 2 year period. In contrast, 85 percent of the treatment group reported meeting with a lawyer, as shown in Table 2.[11] These figures are important since they confirm that, in our setting, there is very low access to lawyers, absent our intervention. If the control group had access to lawyers, our intervention would have simply displaced existing lawyers, which could have resulted in very little or no effect on economic outcomes. As well as increasing the probability of meeting a lawyer , the number of meetings with a lawyer also increases, as shown in Column (2). The counterfactual is a situation with little access to lawyers.

As shown in Column (3), in the control group, only 3 percent of disputes were resolved, while this figure was 39 percent in the treatment group (dispute resolved means case won, case lost, out of court settlement, legal advice given and participant says case is resolved). Thus, our intervention caused a large increase in the number of resolved disputes.

In the treatment group, there was no significant increase in the probability of filing a case in court as shown in Column (4). As highlighted in our illustrative cases, the lawyer did not always have to file a case in court to resolve cases, but sometimes used mediation or merely gave legal advice (Cases 4, 5, 6, and 7). It is also possible that when the participants had a lawyer, defendants found it less advantageous to institute formal legal proceedings against them (sometimes the participants were the ones being taken to court).

These results remain significant when using the Fisher test accounting for multiple hypothesis testing, as shown by the p-values in Table 2.

In the treatment group, people were satisfied with the legal representation given, as shown in

[10] AEARCTR-0001293, May 24, 2016

[11] In theory, 100 percent of the treatment group should have met with our lawyer. This did not happen for two reasons. First, in some cases, the participant indicated that s/he wanted a lawyer at baseline, but then quickly indicated that the case was resolved. The threat of our lawyer and judicial proceedings may have been enough to resolve the case. Second, in few other cases cases, some participants assigned to the treatment group became hard to reach and never met with the lawyer. They were not attritors, as they nevertheless availed themselves for the endline survey. In line with Greiner and Pattanayak (2011), our results are thus best interpreted as the impact of the offer, not use, of representation, in other words, an intent-to-treat effect.

Table 2—Dispute Outcomes

	(1) Any meetings with lawyer?	(2) Total meetings with lawyer	(3) Outcome reached?	(4) Case filed in court?
Treatment*Post	0.71***	4.30**	0.35***	-0.09
	(0.05)	(1.08)	(0.04)	(0.06)
P-val Fisher	(0.00)	(0.07)	(0.08)	(0.48)
(Multiple Hypothesis Testing)				
Mean Control	0.14	2.35	0.03	0.36
(SD)	0.35	11.07	0.18	0.48

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. Standard errors for each of the estimated treatment effects are listed directly below in parentheses. Outcome (1) is a dichotomous variable with a value of 1 if the respondent had any meetings with lawyer in regards to their legal dispute, 0 otherwise. Outcome (2) measures the number of meetings each respondent had with the lawyer in regards to their legal dispute. For respondents in the control who did not use a lawyer, this value is 0. Outcome (3) is a dichotomous variable with a value of 1 if, at endline, the legal dispute had been resolved and 0 otherwise. Resolutions include: winning the case in court, losing the case in court, reaching an out-of-court settlement, or legal advice given. Outcome (4) is a dichotomous variable with a value of 1 if, at endline, the legal dispute had been filed in court by either of the parties, and 0 otherwise.

Panel (a) of Figure 3. People thought the lawyer was professional (Panel (b)). People said they would likely advise friends to seek legal aid for similar disputes (Panel (c)). Overall, people appreciated the service. The next section looks at the effects of the intervention on economic outcomes.

B. Effects on Economic Outcomes

We proxy effort by the total days per month worked on the respondent's main plot of land by all individuals[12]. Column (1) of Table 3 shows that treated households worked more after the intervention, exactly in line with the theory. In the control group in the baseline, an average of 30 man-days are worked on the plot. This figure increases by a statistically significant 4.5 days in the treatment group after the intervention, a 15 percent increase.

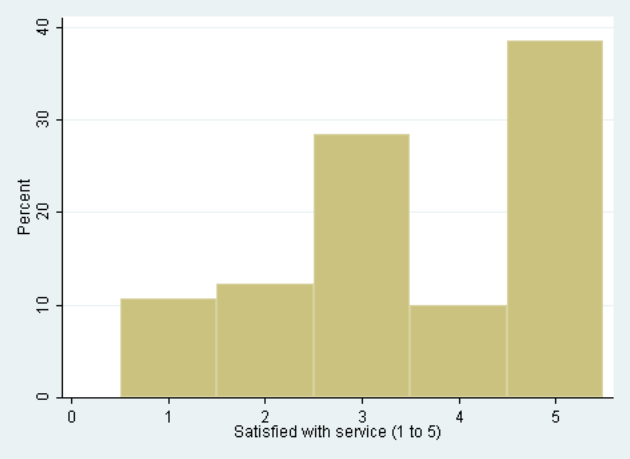
This increase in days worked is not driven by the household head (who worked only 0.24 more days in the treatment versus control group). Thus, this effect is not merely driven by the savings in time for the household head (who is most likely handling the case) afforded by the presence of a lawyer.

Is this estimate plausible? In Appendix D, we calibrate our model of the legal system to simulate the effects of our intervention offering a free lawyer. We use data from the Doing Business Project on the Kenyan judiciary. We find that under the current conditions of the Kenyan judiciary in

[12]This includes: 1- household head, 2-spouse of head, 3-children of head, 4-parents of head, 5-in-laws of head, 6-siblings of head, 7-siblings in-law of head, 8- other family members, relatives, 9- friends, 10-hired labor, 11-other.

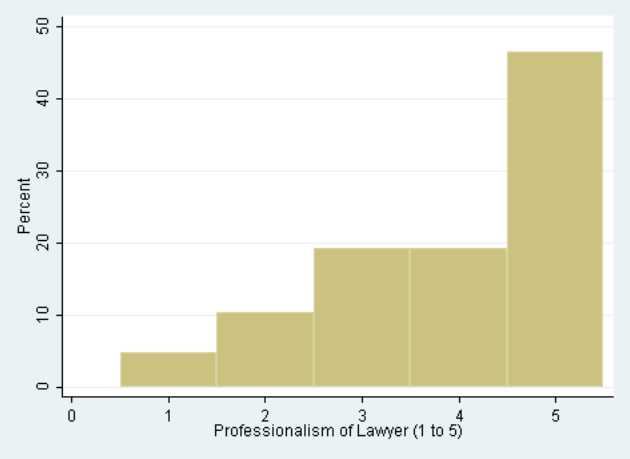
Figure 3. Satisfaction with Lawyer

(a) Satisfaction with Lawyer



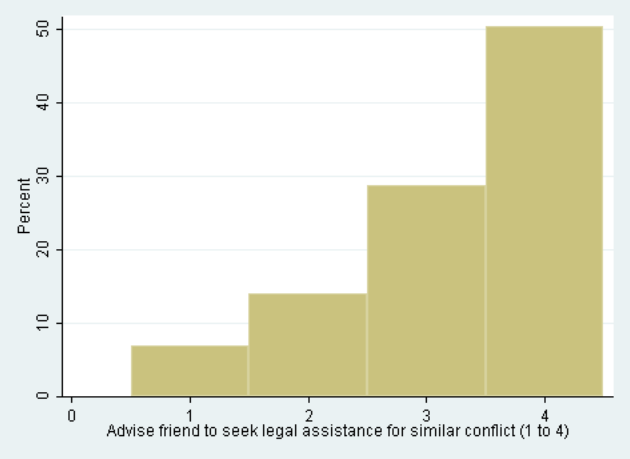
"How satisfied were you with the legal aid you were provided?" (1=extremely unsatisfied, 5=very satisfied)

(b) Professionalism of Lawyer



"How would you rate the professionalism of the advocate who handled your case?

(c) Likelihood of recommending lawyer to a friend



"How likely would you be to advise a close friend or family member to seek legal assistance for a similar dispute?"

Table 3—Effects on economic outcomes

	(1) Total days worked	(2) Fertilizer	(3) Borrowed past year?	(4) Agricultural Production
Treatment	4.56***	5.38*	0.09**	106.27*
	(1.04)	(2.24)	(0.03)	(44.99)
P-val Fisher	(0.05)	(0.18)	(0.08)	(0.19)
(Multiple Hypothesis Testing)				
Mean control baseline	30.47	25.53	0.16	253.21
(SD)	30.08	40.88	0.37	432.98

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. Standard errors for each of the estimated treatment effects are listed directly below in parentheses. Outcome (1) is the total number of days worked on the main plot by all family members. (2) is the amount in USD PPP of fertilizer used on the plot. (3) is a dichotomous variable with a value of 1 if the respondent borrowed from a credit union in the past 12 months, 0 otherwise. Outcome (4), agricultural production, measures, in USD PPP, the market prices the monthly total of all animal and crop products produced on the respondent's farm.

terms of cost, time, and quality, an aggrieved party has no incentives to sue and access the courts. We also find that if the lawyer fees were set to zero (as in our intervention), then there would be positive incentives to sue in case of a dispute. We simulate the effect of our intervention by comparing effort and investment levels to what would happen in a control group with informal dispute resolution mechanisms (calibrated with reasonable parameters from our data detailed in Table D1 of Appendix A). The model predicts that access to the judiciary would increase effort by 12 percent, in line with the empirical estimates.

Table 3 also shows that treated households invested more. The main agricultural investment in this community is the use of fertilizer, which accounts for 46 percent of the value of all investments (which include pesticide, seeds, manure purchased, manure collected, mechanical inputs, fencing, other non-labor inputs). Column (2) shows that the use of fertilizers increases by 5 USD per month, an increase of 21 percent compared to the control group.

Column (3) shows that treated households borrowed more for long-run productive investments, again exactly in line with the theory. The outcome is a dichotomous variable equal to 1 if the household borrowed from a credit union, 0 otherwise. Credit unions are the most important source of formal finance in Kenya (called savings and credit cooperatives, SACCOs, in Kenya).[13] This is also true in our sample: at baseline, 14 percent of the control group got a loan in the previous year from a credit union, compared to only 7 percent from microfinance institutions, and 0 percent

[13]Table 8.3 of 2016 FinAccess Household Survey, published by Kenya National Bureau of Statistics (KNBS), Financial Sector Deepening Trust (FSD) Kenya and Central Bank of Kenya (CBK).

from a formal bank or government agency (see Table 1). The treatment increased the proportion of people borrowing by 9 percentage points, a 56 percent increase compared to the control group.

The increased borrowing from credit unions may have significant long-term effects since loans from credit unions are used for long-term productive investments (to buy land, or invest in business, education), not for day to day needs, or emergency.[14] This is also true in our sample. Table 4 shows that 48 percent of people who borrowed from a credit union in the past year indicated that the loan was for agricultural investment. Credit union loans are not only used for agriculture: 26 percent report using the loan for human capital investment, 23 percent for business investment, and 22 percent for health-related expenses.

Table 4—Use of loans from credit union

Category	Percentage
Agricultural investment (land, building, irrigation, equipment, livestock)	48%
Human capital investment (pay school fees)	26%
Business Investment	23%
Health (Pay medical bills, buy medicine)	22%
Short-term needs (buy food, basic needs/consumption)	5%
Other (including funeral expenses, pay wages to workers)	26%

Note: Percentages are calculated from aggregated baseline and endline data from all respondents who reported taking out a loan from a credit union in the past 12 months. Respondents were allowed to give multiple responses (hence the total above 100%). Agricultural investment includes: buy fertilizer, buy seeds, construct building on land, irrigate land, buy livestock, and buy farming equipment.

What may be driving this increased borrowing in the treatment group? The main source of collateral for these credit union loans is the harvest (see Table 5). Thus, increased security of property rights on the land increases the security of the harvest (decreasing the likelihood of expropriation), which is used as collateral to get loans and used for more general purposes than just agriculture (see Appendix A for a simple theoretical model of the effects of the legal system on credit).

In Column (4), we find that agricultural production increases by 106 USD per month, a 42 percent increase. These results show that access to the legal system increases effort, investment, access to credit, and incomes.

The results on effort and access to credit remain significant when using the Fisher test accounting for multiple hypothesis testing, as shown by the p-values in Table 3. To be fully transparent, the

[14]Tables 8.3 and 8.4 of 2016 FinAccess Household Survey, published by Kenya National Bureau of Statistics (KNBS), Financial Sector Deepening Trust (FSD) Kenya and Central Bank of Kenya (CBK).

Table 5—Reported collateral at credit union

Category	Percentage
Harvest	30%
Savings or Shares at Credit Union	19%
Other Assets	14%
Land	12%
Guarantor	11%
No Collateral	7%
Pension	6%

Note: Respondents who had taken out a loan at a credit union in the past 12 months were asked to list any sources of collateral used as a guarantee. Multiple responses were permitted.

effect on investment and agricultural production are not significant with these more conservative standard errors.

C. Other Outcomes

Another effect of our intervention may have been to reduce physical violence by resolving disputes. For example, in Case 7, the defendant was damaging trees on the participant's property and harassing her to vacate the land. After our lawyer stepped in and a case was filed in court, the judge ruled in the participant's favor which ended the dispute. In Case 8, the defendant and her children had been harassing and threatening the participant to stay off the land under dispute. Our lawyer obtained a restraining order, temporarily preventing the defendant or her children from entering the land, under threat of arrest. The court ruled with a compromise between the two parties. Satisfied with the outcome, the participant was able to get an official title to the land.

To test the hypothesis that access to the legal system would reduce physical violence in a more formal way, we collected data on physical attacks as part of our endline and baseline surveys. Column (1) of Table 6 reports a slight decrease in the likelihood of physical attacks for our treatment group. Moreover, we do not find that access to the legal system significantly increases stress (Column (2)) and worries (Column (3)).

Out of completeness, we show in Appendix E the full set of outcomes from our pre-analysis plan. It is striking that out of the 77 outcomes (the 18 principal outcomes of figure E1; 30 secondary outcomes in H1 in Table E1 about the likelihood to use a lawyer in future, perceptions of corruption, and legal knowledge; 6 secondary outcomes in H1 in Table E2 about the perceptions of the judiciary; 5 secondary outcomes in H1 in Table E3 about the types of dispute in past year; 18 secondary

Table 6—Other outcomes

	(1) Physical attack past year?	(2) Stress (PSS10)	(3) Worries
Treatment	-0.02*	0.23	-0.58
	(0.01)	(0.77)	(0.53)
Mean control baseline	0.02	30.69	49.18
(SD)	(0.15)	(4.87)	(7.90)

Note: Outcome (1) takes a value of 1 if the respondent experienced a physical attack in the past year, and 0 otherwise. (2) measures stress using the ten-question Perceived Stress Scale (PSS10), one of the most commonly used scientific measures of stress. See section 1 of Appendix H.H1 for a detailed description of the calculation. Outcome (3) worries are measured by aggregating over a list of 15 potential worries. See section 2 of Appendix H.H1 for a detailed description of the calculation.

outcomes in H2 in Table E4 about the security of property rights), only the use of a lawyer, the resolution of cases, the occurrence of land disputes, effort, the use of fertilizer, borrowing at credit unions, and agricultural production are significant. This clearly confirms that the theory formulated in this paper specifically on effort, investment, access to credit, and output seems to be the channel through which the judiciary affects economic activity.

VI. Discussion

A. Magnitude of the Effects

Are these effects large? Agricultural production increased by 106 $ USD per household per month. Our total costs (lawyer salary, office rent, average court fees, lawyer transit, paralegal salaries)[15] divided by the 191 households treated in our experiment amounted to 15$ per household treated per month (2,944 USD per month divided by 191 households treated). We achieved low costs through this concept of a "community justice center", whereby one lawyer serves 191 households. Considering the benefits greatly outweighed the costs, these findings point to large effects of access to the legal system on economic activity.

These results on the effect of a lawyer may seem surprising considering the well-known deficiencies of the legal system, in terms of speed, corruption, enforcement of decisions, or unfair laws. One may wonder how a lawyer was able to achieve these results if the judiciary is slow, corrupt, has difficulties enforcing decisions, or if laws are unfair. Concerning the issue of speed, the Kenyan

[15]See Table G1 in Appendix G.

judiciary is indeed slow: it takes on average 2 years to resolve a case.[16] This is why we allowed for a 2 year window in between the baseline and the endline in our project. Moreover, not all cases went through court. 17 cases were settled through mediation or settlement out of court, well before the 2 year mark.

Corruption may also have been an obstacle to our intervention. In our project, our main cases were: land grabbing between neighbors, boundary disputes, or succession cases. All parties were poor and would have been unable to offer significant bribes. We never felt the other party was bribing. This is in line with the participants' perceptions about the need for bribes. In the hypothetical case reported above ("Imagine that you have the title deed to your plot, and then your neighbor attempts to grab it. Let us say that you decide to use the judiciary"). To the question: "On a scale of 1 to 5, would you have to pay a bribe with a lawyer?", the mean answer is 1.1. To the question "On a scale of 1 to 5, would you have to pay a bribe without a lawyer?", the mean answer is 1.5. Thus, perceptions on the need for bribery are low. Our policy was to never give bribes, in line with our partner Kituo Cha Sheria's policy.

The difficulty in enforcing decisions was also not a concern. In our research project, all parties abided by the judgments. There are very clear mechanisms to enforce decisions. In a land grabbing case, if the defendant refuses to vacate, the police can be involved. In a succession case, the final outcome is to get an official title deed to the land in question. If the land is still encroached upon after getting the official title, it becomes a land grabbing issue, whose enforcement procedure was explained above. Our lawyer was able to enforce all decisions.

Finally, the actions of our lawyer may have been impeded by unfair laws. However, the Kenyan laws pertaining to cases in our research were not unfair. For instance, the Law of Succession guarantees distribution of a parent's estate to all children, regardless of gender. This is in sharp contrast with the (Kikuyu) customary law: only sons and unmarried daughters can inherit. The new and progressive 2010 Kenyan constitution states that "any law, including customary law, that is inconsistent with this Constitution is void" (Art. 2). Moreover, "Every person has the right, either individually or in association with others, to acquire and own property" (Art. 40 (1)).

In fact, the biggest concern with the legal system for our respondents was not speed, corruption or enforcement, but the cost of a lawyer. We asked the participants their perception of lawyer fees in a hypothetical scenario: "Imagine that you have the title deed to your plot, and then your neighbor attempts to grab it. Let us say that you decide to use the judiciary. How much do you think lawyer fees would cost? How much would it cost you to try your case in the courts (excluding

[16] http://www.doingbusiness.org/data/exploreeconomies/kenya#enforcing-contracts

lawyer fees)?". They estimated lawyer fees at 1888$,[17] and court fees at 1209$. These amounts are very large compared to the average annual household income of 2312$. Accessing the judiciary is prohibitive for poor people.

We further asked the participants: "What is the main reason you chose not to use the judiciary?". The overwhelming answer was "too expensive" (58 percent). Other answers were much less frequent: "I like dealing with disputes informally first, before I use formal methods of dispute resolution" (14 percent), "don't know how to access the courts" (10 percent), "too complicated" (9 percent), "the courts are corrupt" (3 percent), "my case is too minor to go to the courts" (2 percent), "don't think the court's decision will be enforced" (2 percent), and "the courts would take too long to resolve the case" (1 percent).

Cost, rather than corruption or enforcement, was the biggest barrier to accessing the judiciary. This is in line with the existing literature, which documents that many disputes are not brought to formal institutions because accessing them would be too expensive (Yamano and Deininger, 2005). Our intervention, by offering the services of a lawyer for 2 years, removed that cost constraint, and allowed people to access the judiciary.

B. Policy Implication

Despite the positive cost-benefit analysis, advocating for a full scale-up of the program is premature at this stage due to the presence of possible general equilibrium effects. If access to a lawyer were offered for free to any household with official documentation of a legal claim, this would congest the courts. We do not find evidence in our project of more cases being filed (Column (4) of Table 2). Yet, our lawyer intensively solicited the services of the court for each case filed. This may reduce the overall speed of the judiciary, thereby potentially negating the positive effects felt by the treated households. Our results are only partial equilibrium, and do not take into account this possibility.

A first answer to this point is that it is not always true that free access to a lawyer will increase cases filed. If the judiciary's quality is high, access to a lawyer may deter expropriation in the first place, which will reduce the number of cases filed. Knowing that they will be sued at no cost to the plaintiffs and swiftly punished, powerful individuals may refrain from expropriating. Of course, this argument relies on the existence of a high quality judiciary: if the expropriators do not anticipate being swiftly punished, they will still expropriate, and access to a lawyer will increase the number of cases filed.

[17] All amounts in USD PPP.

Second, we show in our model in Appendix F that the general equilibrium effects could be attenuated by taxing the increased economic activity generated by access to a free lawyer to finance the judiciary. Of course, this argument relies on two assumptions: 1) economic activity can be taxed, 2) governments have the political will to finance a well-functioning judiciary. In Kenya, most people work in the informal sector and are not taxed, and the Kenyan judiciary is chronically underfunded.[18] Therefore, in the case of Kenya, this possibility (taxing to finance the judiciary) seems unlikely. In any case, this intervention (giving free access to a lawyer) should be complemented with more global judicial reforms facilitating the absorption of the influx of new cases. Chemin (2017) delves into this issue by looking at the complementary effects of judicial reforms targeting access, speed, or quality; and finds that comprehensive, rather than limited, judicial reforms have the largest effects.

At any rate, our goal in this particular paper was not to generate a policy implication but to test a theory: does access to the legal system increase effort and investment? Our randomized experiment is a first step in that direction, which should be complemented with an impact evaluation of more global reforms to address the potential general equilibrium effects.

C. External Validity

Our sample only included households currently engaged in on-going disputes since our lawyer could not help households without a dispute. Yet, most plots are affected by a dispute at one point or another. For example, André and Platteau (1998) have shown that 45 percent of all plots were affected by a land dispute, and when interpersonal disputes related to land were included, the number of disputes exceeded the number of households. Thus, our results are important for a large fraction of society.

How generalizable are our results to other contexts? Our project was implemented in a small rural community of Kenya. This community is representative of the rural Central Province of Kenya, an area comprising more than 3 million people (see Chemin, 2016). Yamano and Deininger (2005) ranks the Central Province in the middle of the distribution of incidence of land disputes within Kenya. The Kenyan judiciary is ranked in the middle of the distribution of judiciaries in the World (ranked 85 in 2016, see Doing Business Project).

A difference between Kenya and the rest of Sub-Saharan Africa is the unique land titling history of Kenya. Starting with the Swynnerton Plan of 1954, Kenya undertook what has turned out to be the most ambitious program of systematic land demarcation and titling in Africa to date

[18]The Kenyan judiciary's budget was 1 percent of the national budget in 2014-2015, below the internationally agreed upon benchmark of 2.5 percent (State of the Judiciary and the Administration of Justice, Annual Report 2014 – 2015, p.150).

(Migot-Adholla, Place and Oluoch-Kosura, 1994). The issue is that wills were not written, and most land transactions went unrecorded, leaving land registers moribund (Migot-Adholla, Place and Oluoch-Kosura, 1994). Some households have not bothered to collect their titles, the existence of which is of little interest to them (Aliber and Walker, 2006). Therefore, despite an ambitious titling program, very few people hold an official land title. Still, one could wonder whether the results found in this study (access to the judiciary matters) only materialized because land titles exist in the first place. In the complete absence of land titles, access to the legal system could have smaller effects.

To answer this question, it is interesting to look at evidence from other contexts. A first step is to check whether there is a cross-country correlation between access to the judiciary and economic outcomes, of a similar magnitude than in our randomized experiment. We use data from the Doing Business Project collating information on the costs of enforcing contracts in all countries in the world. Figure 4 shows the cross-country correlation relating the costs of accessing the judiciary (as a percentage of the claim) to access to credit. The regression coefficient is -0.64, such that a one percent decrease in the cost of accessing the judiciary is associated with a 0.64 percentage points increase in credit as a proportion of GDP. Our intervention offered a free lawyer, which is estimated by the Doing Business Project as 27.5 percent of a typical contract enforcement claim in Kenya. Thus, our intervention decreased the costs of access to the judiciary by 27.5 percentage points, which is associated with a -.64 * 27.5 = 18 percentage point increase in credit. This is more than our 9 percentage points found, which is exactly in line with the fact that a correlation is most likely biased upward by reverse causality and omitted variable biases.

Figure 4. Cross-country correlation between Cost to enforce a claim and Access to credit

Our findings on access to justice are also very similar to a more rigorous literature on the effects of legal aid, and more generally the judiciary, implemented in other contexts. In Liberia, Sandefur and Siddiqi (2013) offered paralegals to a treatment group, which increased food security, and household well-being. In Liberia, Blattman, Hartman and Blair (2014) offered training sessions on alternative dispute resolution mechanisms, and found this resulted in less land disputes. In Brazil, Lichand and Soares (2014) find that setting up new tribunals, thereby improving access to justice, increases entrepreneurship rates by 10 percent. In India, Lilienfeld-Toal, Mookherjee and Visaria (2012) find that setting up debt recovery tribunals, thereby improving access to justice for creditors

unable to seize collateral in case of default, increased borrowing by 40 percent after three years. In Senegal, Kondylis and Stein (2017) find that a reform mandating time limits on legal procedures increased access to credit. Overall, the accumulation of evidence using different methodologies in different contexts all point towards positive effects of the judiciary on economic activity.

D. Attrition

As explained above, attrition was kept low. In the treatment group, 4 out of 191 households (2 percent) refused to answer the endline. In the control group, 9 out of 148 households (6 percent) refused to answer. Other participants died, or were impossible to locate, making our final sample size 286.

In Table 7 we find that the Lee bounds are still positive for total days worked on plot and credit union borrowing. To be fully transparent, the lower bounds are not statistically significant.

Table 7—Lee bounds estimation for economic outcomes

	Lower bound	Upper bound
(1) Any meetings with lawyer?	0.697***	0.703***
	(0.04)	(0.06)
(2) Total meetings with lawyer	3.95***	4.35***
	(1.48)	(1.28)
(3) Outcome reached?	0.35**	0.36**
	(0.04)	(0.04)
(4) Case filed in court?	-0.082	-0.077
	(0.06)	(0.06)
(5) Total days worked	3.92	5.69*
	(3.25)	(3.41)
(6) Fertilizer	4.34	7.17
	(4.85)	(4.82)
(7) Borrowed past year?	0.076	0.097*
	(0.052)	(0.053)
(8) Agricultural production	69.61	178.23
	(170.63)	(170.63)

Note: Trimming proportion: 0.0102. *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. Standard errors for each of the estimated treatment effects are listed directly below in parentheses. Outcomes (1)-(4) are from Table 3. Outcomes (5)-(8) the same as Table 2.

VII. Conclusion

In this paper, we show that access to the legal system has a causal effect on economic development. Numerous papers (Chemin, 2009*b*,*a*, 2010; Lilienfeld-Toal, Mookherjee and Visaria, 2012; Lichand

and Soares, 2014) have used judicial reforms as natural experiments to identify the effect of the judiciary on economic activity. The issue is that judicial reforms are implemented in certain places at certain times for endogenous reasons, which may bias the estimates. Our paper is the first to use a randomized experiment. We show that giving access to the legal system, by offering the services of a lawyer for 2 years, increased effort by 15 percent, investment by 21 percent, access to credit by 56 percent, and agricultural production by 42 percent.

These effects are statistically and economically significant: the benefits of the intervention are found to outweigh the costs. It is premature at this stage to formulate a policy implication based on this paper, since offering a free lawyer on a large scale may clog the courts, thereby negating any positive effects of the intervention. A more thorough investigation of large scale reform of this type is needed before formulating policy implications.

Nonetheless, the goal of this paper was to bring evidence to the debate on the role of institutions. The challenge for the institutions theory is to provide empirical evidence of the causal impact of institutions on growth. This has been hard to validate for two reasons: exogenous variation in institutions is hard to come by, and historical data on slow-changing institutions is difficult to get. In this paper, we follow another route: we focus on the legal system, and provide an exogenous variation through a randomized experiment giving access to the free services of a lawyer to some while the control groups still had access to traditional resolution mechanisms or prohibitively expensive for-profit law firms. This avenue offers exciting prospects for the institutions theory, since one can imagine randomizing access to other institutions to analyze their causal impact.

Another exciting avenue of future research is to look at the effects of the judiciary not only on the users as in this paper, but on the general population. Does the mere knowledge of a functioning and impartial judiciary in-and-of itself decrease the risk of expropriation, and increase investment? In an on-going experiment, we are implementing an intervention delivering legal information to individuals, which may be enough to generate economic returns.

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APPENDIX

Appendix A: Effects of Access to the Legal System on Credit

Access to the judiciary may also have an effect on access to credit. We follow Besley and Ghatak (2009). Our contribution is to introduce explicitly the role of the judiciary.

Suppose the farmer wishes to start a project, which could be related to agriculture or a different project altogether. e is the effort level exerted by the farmer on this new project, and is private information to the farmer. The cost of capital is ρ. Capital enhances output by Δ, such that output is $A(1+\Delta)$with probability $\sqrt{e}$, and 0 with probability $1-\sqrt{e}$. Expected output is $\sqrt{e}A(1+\Delta)$. The farmer's maximization problem is:

$$max_e \sqrt{e}A(1+\Delta) - e - \rho$$

This leads to equilibrium effort level $e^* = \left[\frac{A(1+\Delta)}{2}\right]^2$. The problem is that the farmer cannot finance ρ. He must obtain credit for an amount ρ from a lender. The borrower must repay total amount r, with $r > \rho$ to make it worthwhile for the lender. Effort is unobservable (otherwise the lender could set $e = e^*$).

There is limited liability: the farmer is liable up until the value of the collateral. Suppose first there is no collateral. In this case, the surplus of the borrower is:

$$max_e \sqrt{e}\left(A(1+\Delta) - r\right) + (1-\sqrt{e}) \times 0 - e$$

Given r, the farmer chooses e to maximize surplus: $e^* = \left[\frac{A(1+\Delta)-r}{2}\right]^2$. This is less than the equilibrium effort level under no credit. The surplus of the lender is: $\sqrt{e}r + (1-\sqrt{e}).\, 0 - \rho$. r is greater than ρ, but effort is low. Overall, it may be that $\sqrt{e}r < \rho$; in that case, the lender does not lend. The standard issue is that when the farmer has no collateral, there are less incentives to exert effort. The surplus of the lender is low, and the lender might not want to lend in the first place.

In practice, credit unions in Kenya have very strict borrowing requirements (Jack et al., 2015). The main source of collateral is the farmer's harvest of a storable cash crop. The presence of a judiciary bolsters the value of the collateral. The judiciary protects from expropriation, which increases effort and output on the plot of land. The effort level is: $e^* = \left[\frac{(p\beta^T - l_p)A}{2}\right]^2$. At that effort level, output is $A\sqrt{e^*}$, also equal to $\frac{(p\beta^T - l_p)A^2}{2}$. That output can be used as collateral to get access to credit for another project. Another common source of collateral is shares within the

credit union. We denote them by S. These shares can easily be seized in case of non-repayment. The surplus of the borrower is:

$$max_e \sqrt{e}\,(A(1+\Delta)-r)+(1-\sqrt{e}).\left[0-\frac{(p\beta^T-l_p)A^2}{2}+S\right]-e$$

Recall the two projects: the first is on the plot of land, which generates an output used as collateral for the second project. There could also be expropriation of the output on the second project. Yet, we focus on expropriation on the plot of land to show the channel through the collateral. Equilibrium effort level is:

$$e^*=\left[\frac{A(1+\Delta)-r+(p\beta^T-l_p)A+S}{2}\right]^2.$$

The higher value of the collateral increases the effort level, and solves the moral hazard issue. For the lender, the surplus is: $\sqrt{e}r+(1-\sqrt{e}).\left[\frac{(p\beta^T-l_p)A^2}{2}+S\right]-\rho$. The higher value of the collateral increases the lender's surplus, who is thus more willing to lend. In fact, if S is big enough, the lender might always be willing to lend. The issue might not be on the supply side: the very strict borrowing requirements ensures that the lender is always willing to lend. The issue is more on the demand-side: the judiciary ensure that the borrower can fulfill the strict borrowing requirements. In any case, credit is given, and the farmer can invest, which further increases output.

Proposition 2. Access to the judiciary increases access to credit.

What is the effect on the interest rate? In competitive markets, the lender's surplus is zero, thus $\sqrt{e}r=-(1-\sqrt{e}).\left[\frac{(p\beta^T-l_p)A^2}{2}+S\right]+\rho$. The higher value of the collateral coupled with the higher effort level exerted ensures that the interest rate goes down. The intuition is that the lender can charge a low interest rate since the lender can seize a greater collateral in case of non-repayment. The lower interest rate further increases the effort level.

Of course, credit markets may not be competitive. Lilienfeld-Toal, Mookherjee and Visaria (2012) show that when debt recovery tribunals are set up to hasten the recovery of seized assetsin case of non-repayment, lenders respond not by increasing the supply of credit, but by increasing interest rates, and making a higher profit, at least in the short run. If interest rate r goes up, then this cancels out the effect of the increased collateral on effort: the presence of the judiciary does not solve the issue.

Lilienfeld-Toal, Mookherjee and Visaria (2012) explain this phenomenon by the inelastic credit supply in the short-run: in the short run, it is difficult to gather information on new customers and expand credit. In the long-run, the supply of credit is more elastic, and interest rates adjust. In our

case, the supply of credit might be more elastic in the short-run. Credit unions are different from regular banks: they are owned by their members. Any member satisfying the very strict borrowing requirements can borrow. The interest rate is set at a constant rate by its members. The main issue is the very strict borrowing requirements, which are easier to fulfill with a judiciary.

Appendix B: What the Lawyer Does

As noted in Section IV in the main body of the paper, to be eligible for our randomized intervention, participants had to be involved in an ongoing land-related legal dispute. Furthermore, their claim had to have legal merit, as judged by one of the paralegals who collected the case. Participants randomized into the treatment group, henceforth "participants", were subsequently invited for an initial meeting with the lawyer at the Community Justice Center. In preparation for the meeting, they were asked to bring any supporting documentation that might help with their case. Based on the initial meeting, the lawyer decided how best to proceed, adhering to the protocol taught in Kenyan law school. She tried first to reach an out-of-court agreement with the other party. If this out-of-court option failed, she implemented formal legal proceedings, the specifics of which varied from case to case. Any incidental fees relating to the case were assumed by our Community Justice Center, the most common of which are listed in Table B1. participants were given the lawyer's office phone number, and could, in theory, visit our lawyer at the Justice Center as often as they wished.

Table B1—Legal fees covered by Community Justice Center

Service	Cost (USD)	Description
(1) Filing	2-90	Administrative fees related to lodging case in court, varies with size of files submitted.
(2) Green Card	136	A legal document obtained from the district land's office pertaining to the land in question. It contains a history of all changes in ownership since the land was demarcated.
(3) Search Certificate	12	A legal document obtained from the district land's office pertaining to the land in question. It lists only the current owner.
(4) Perusal	1.75 per case	Court fee charged each time a lawyer reviews an archived case.
(5) Attestation	1-12	A signed copy by a Commissioner for Oaths (usually a third party lawyer), attesting to the legitimacy of a particular document or witness testimony. Cost varies with scope of request.

As the examples below illustrate, each case had its own peculiarities. Nevertheless, the steps followed by our lawyer generally follow the same pattern: (1) meet first with the participant, (2) get the other party's side of the story and attempt an informal mediation, (3) formally file the case in court, (4) attend court hearings and mentions, (5) obtain further documentation from the participant, if need be, and (6) (if we won the case) ensure the decision is enforced.

B1. Case 1: Boundary Dispute

The participant was involved in a boundary dispute with his neighbor. Although the plots of land had been demarcated, cement beacons had never been placed on the farmland. The participant said that his neighbor was tending a portion of land that was, in reality, on the participant's property. Prior to seeking our help, he had tried to settle the matter with his neighbor. His neighbor would promise to discuss the matter with the local land registrar, only to never show up. Similar promises were made concerning meetings with the local chief, never to materialize.

The participant visited our offices in June 2016 for the initial meeting with the lawyer, bringing with him his title deed along with a sketch of the boundary in question. Our lawyer reached out to the neighbor, sending a paralegal to his home inviting him for a mediation session. The neighbor was polite and agreed to an informal meeting at the Community Justice Center. During the mediation, both parties decided to split the cost for a surveyor to officially demarcate their land with beacons. This was relatively easy for the surveyor because both neighbors had title deeds to the plots in question and maps of the plots were readily available at the lands office.

Our lawyer was able to locate a surveyor agreeable to both parties. The land was surveyed on July 25 2016 and beacons were placed on the boundary. Both the participant and his neighbor promised to respect the decision of the surveyor. Over the next few months, our lawyer called back the participant on several occasions to make sure the dispute was indeed settled and that the neighbor did not renege on his promise.

B2. Case 2: Delays in Succession

This case concerns a 6-acre family farm originally belonging to the participant's grandfather. The participant's father was one of 4 children and prior to their father's (the participant's grandfather) death, they had each been promised an equal share of his estate. Unfortunately, he left no will and a formal succession process was never carried out. The participant's uncle—the eldest of the 4 children—was preventing his other siblings (along with their children) from formally subdividing the land.

The participant had visited our office for the initial meeting with our lawyer in April 2014. The lawyer first arranged for an informal mediation session in June between the participant's father and his uncle. At the mediation session, the uncle told us he had been unwell but was determined to start formal succession; he also made clear that he had no objections to his siblings receiving equal shares. However, by the end of August, the uncle had remained silent and elusive for close to two months, not answering our phone calls and never at home when visited by our paralegals.

Unable to reach an out-of-court settlement, our lawyer began formal legal proceedings, lodging an application to have a hearing at the nearby Kerugoya Law Courts and secured a hearing date of January 28, 2015. Errors in filing however pushed this date back to June 2015, and then early 2016.

When the participant's uncle was served with a notice of the mention, he became more cooperative and, in August 2015, our lawyer hosted another mediation session between all the siblings—the participant's 2 aunts, his father, and his uncle. The session ended in success, with all siblings agreeing to equally split the 6-acre estate. By early September, all parties had signed a formal consent on the mode of distribution of the land. The consent was approved by a judge in January 2016, and formal succession was implemented. The participant's father now has a title deed to the 1.5 acres in question.

B3. Case 3: Out-of-Court Settlement

The participant had hired a broker to sell a quarter acre of his land. After the transaction, the participant became suspicious and purchased a search certificate[19] where he discovered that the broker, henceforth "the defendant", had actually transferred the entire farm to himself without the consent of the participant.

He met with our lawyer initially on September 9 2014 to explain the situation in more detail. Our lawyer instructed him to come back with a copy of the sale agreement (which only stipulated the sale of a quarter acre NOT the entire farm) so she could establish the grounds for a fraud case. In the meantime, our lawyer also drafted a demand letter to be sent to the defendant, requesting informal mediation. This was done in the hope that the defendant might be willing to reconsider his actions upon discovering the participant now had a lawyer. Upon receiving the demand letter the defendant appeared willing to settle the matter out of court. However, he seemed to have a change of heart and, in December 2014, informed our lawyer that there was nothing further to discuss, as the transaction was valid, and that he would hire his own attorney if the participant took him to court.

On February 2 2015, our lawyer officially filed the case with signed affidavits from the participant, the sale agreement, and the search certificate which showed the defendant as the owner. One of our paralegals subsequently served the defendant. A hearing date was set for June 12 2015.

During the hearing, the judge suggested the parties reach an out-of-court settlement. Soon after the participant called us to confirm that the parties had reached a settlement on the matter. They

[19] See Table B1 for a description.

visited the office one last time on July 9 2015 to sign a written consent stipulating that the the dispute was concluded. The participant was reluctant to share the details of the agreement with us but assured us that he was happy with the outcome. On September 7 2015, our lawyer withdrew the case from court, upon submitting the signed consent from both parties.

B4. Case 4: Adverse Possession

The participant had been living on a portion of her father's land since his death in 1999. Succession of the estate had been done informally amongst all siblings. In 2013, the participant was visited by a man—henceforth, "the defendant"—claiming to be the owner of a section corresponding roughly to the plot she had been tending to for years. The defendant told the participant that he bought the land from her father, and possessed a title deed from the 1990s attesting to this. The defendant was now planning to sell this portion of land to another buyer. The participant said the defendant had taken advantage of her father who, at the time, was not of sound mind. The parcel of land was sold without the knowledge of anyone else in the family. Her brothers confronted the defendant and, thought the details are not clear, he stopped tending the land prior to the father's death. Under Kenyan law, when someone lives on and tends land for over 12 years, they can claim it as their own , although it is not formally registered in their name. This is referred to as adverse possession. The participant therefore had a legal claim to the land in question.

The participant initially met with the lawyer in March 2013 along with her brothers. They brought their government-issued national IDs along with a copy of the original title deed of their deceased father's land. In an attempt to reach out to the defendant, our lawyer sent a paralegal to invite him to the office for a meeting. However, he insisted that there was nothing to discuss and that the land belonged to him and it was his right to sell it.

It was then decided that the best course of action would be to the file the case in court on the grounds of adverse possession. Matters were complicated by the fact that a death certificate was never issued for the participant's father. Establishing that the participant's father had been dead for 14 years would be crucial for the case, as this would imply the defendant had ample time to sort matters out with the estate's beneficiaries yet failed to do so. A paralegal was therefore dispatched to the participant's area chief to arrange for a printed death certificate with the district commissioner. Signed statements from witnesses would also be essential. Our lawyer instructed paralegals to draft statements on behalf of neighbors of the participant who claimed she had indeed been living on the land since her father's death. The paralegals were able to obtain signed statements from 3 neighbors, which were then stamped by a commissioner for oaths.

Having obtained all necessary documentation, the case was filed in Kerugoya Law Courts in November 2013 and a mention date was set for May 12 2014. The defendant was served with a notice. At the mention, the defendant had not yet filed a defense and was granted more time. In June, the defendant's attorney, having filed a defense, served us with a mention date of July 15 2014. A combination of no-shows by the defendant and backlogged court schedule, delayed the next hearing for over a year. During this period, the participant continued to live on the land and the defendant had yet to sell it. In the meantime, the defendant changed lawyers and we were served with a defense, claiming that the participant had not been living on the land in question. This was clearly impossible because the participant had been living there and tending the land, by now, for 16 years. To counter these accusations our lawyer once again dispatched a paralegal to the participant's land to obtain signed statements from neighbors, this time claiming that she had been living on the land since her father's death. Our lawyer secured a mention date for July15 2015. Neither the defendant nor his lawyer did showed up. Later, however the defendant filed an application to be given more time to file his defense, which was granted. However, once more, he failed to file a defense within the 14-day window. A hearing date was scheduled for September 14 and, once again, neither the defendant nor his lawyer showed up. Again in January 2016, they failed to show up for the hearing for the fourth time. The judge eventually lost patience and set a judgment date for February 28th ruling in favor of the participant. She is allowed to keep the half acre she has been tending and living on since her father's death. She will now be registered as the sole proprietor. We have now secured a court order stating that the participant is the sole proprietor of the land in question and that she be registered as such. Our lawyer took the order to the lands office, the Kirinyaga Lands Board, so the participant could officially have the land registered in her name.

B5. Case 5: Illegal Exclusion from Succession

The participant's father passed away in 2014 without leaving a will. The brother became the executor of the estate and attempted to exclude the participant and his sister from getting any portion of the land, which is illegal in Kenya. Prior to visiting our office, the participant already had a lawyer on record but could no longer afford to pay the fees and had not seen the lawyer in 3 months. The participant had successfully blocked the transfer of the land; yet, he did not know how to revoke the grant of succession his brother had been given.

In February 2015, the lawyer had an initial meeting with the participant. In June 2015, the Embu High Court ruled in the participant's favor. The defendant appealed. The file suddenly went

missing. This frequently occurs in Kenyan courts which still function with a paper system. It is also possible that the opposing party attempted to bribe a clerk to "lose" the file. This delayed the case until November 2015 when the file was recovered. At the next scheduled date, the court was not sitting. This also frequently occurs in Kenyan courts where numerous cases are adjourned for no reason. The next hearing date was December 2015. When the lawyer came, she was told that the wrong date had been given to her. A new hearing date was given on February 2016. At that date, the lawyer was told that the case had to be transferred to the High Court of Nyeri since the case was an appeal. After several back and forths between the two courts to effectively transfer the case, the court ruled again in the participant's favor in September 2016. The previous distribution excluding the participant and his sister was revoked and the judge ordered a new distribution of the father's estate that must be agreed to by all beneficiaries.

In this case, the participant was likely going to be excluded from his land without the intervention, which may have dampened the incentives to work and invest. Excluding the participant would have been illegal: two courts ruled in the participant's favor on two separate occasions. The succession is not completely over since a new distribution must still be agreed upon; yet, that new distribution will have to include the participant to be legal. This may increase his security of property rights, hence the incentives to work hard and invest, since the fruits of labor will accrue to him. In the case below, the lawyer went even further and completed the succession process.

B6. Case 6: Seizing the Wrong Collateral

The participant's father defaulted on a private loan on which the collateral was a quarter acre of the family farm. The lender, henceforth "the defendant", wanted to take the most fertile and flat section of the farm, which was different from the one stipulated in the original loan agreement. While all parties agreed that a quarter had to be transferred, it was the specific location that was being contested. Despite his claim to the other section, the defendant had yet to occupy the parcel of land in question nor had he initiated formal legal proceedings to transfer the land. This created an understandable amount of uncertainty for the participant's family, who were reluctant to make any long-term investments on a fertile portion of land that risked being confiscated.

The participant and her father attended the initial meeting with the lawyer in July 2013 with a signed copy of the loan agreement and the defendant's contact information. When called by our lawyer, the defendant refused to take part in any informal mediation. Our lawyer needed more supporting documentation to file the case, namely the title deed from the participant's father. After some delays hearing back from the participant, the case was filed in December 2013 and a

mention date was set for June 3 2014. Both parties attended the mention and the judge promptly set a ruling for July 11. The ruling went in favor of the participant's family: the defendant was ordered to accept the quarter acre of land as initially agreed upon in the loan agreement (i.e. NOT the most fertile and flat part of their land). After the ruling, the plaintiff, likely unhappy with the outcome, was very uncooperative in transferring the land. To help finalize the matter, our lawyer drafted a demand letter instructing the plaintiff to execute the orders granted by the court.

Until the defendant officially accepted the piece of land, the participant's family remained in a state of uncertainty. By January 2016, as the defendant continued to refuse the section of land, our lawyer was able to successfully petition the court to get an executive officer (EO) assigned to the case. EOs only get assigned by judges in special situations where they feel the orders of the ruling will have trouble being properly executed. There is only one EO per court so they are in high demand and short supply. The most effective tool at an EO's disposal is the ability to sign legal documents (such as land grants) on behalf of an uncooperative party. The EO spoke with our lawyer over the phone, promising to find time from her busy schedule to sign on behalf of the uncooperative defendant. With the hope of speeding matters along, our lawyer contacted the defendant once more, advising him of the turn of the events. She suggested that it would be in the defendant's best interest to accept the land as it was all but a formality at this point. In March 2016, the defendant finally agreed to accept the section of land in the manner as prescribed by the court order, which he is now tending.

B7. Case 7: Intimidation

At the time of the participant's husband death in 2014, she was the third wife of a polygamous marriage. The participant was infertile but her husband had children with the 2 other wives. Since her husband's death, a parcel of land was registered jointly under the participant's name and the son–henceforth "the defendant"–of another wife. In 2015, the participant got very sick and the defendant forcefully took the title deed and hid it from her. He had recently been damaging macadamia trees on her property and harassing her to vacate the land.

At the time of the initial meeting with our lawyer in January 2016, she was currently occupying the whole plot and the defendant was living elsewhere. She told our lawyer her goal was simply to have the plot divided in 2 equal portions: one for her and the other for the defendant. Our lawyer sent a paralegal from the office to invite the defendant for a mediation but, as he was hostile and refused, she decided to institute formal legal proceedings.

Prior to filing a case, we had to obtain a search certificate for the participant, as the defendant

was still hiding the title deed. The search certificate did indeed show both the participant and the defendant as jointly registered owners of the plot of land. On February 3 2016, with the necessary documentation in hand, our lawyer filed a case in court on behalf of the participant. She was able to immediately obtain a caution on the land in question, preventing the defendant from selling it. The defendant was served with a notice of the caution as well the filing of the case, which gave him 14 days to file a defense.

Soon after, our office was served with a copy of the defense. The defendant falsely alleged that the participant was already given separate parcels of land by her deceased husband and that the portion in question should therefore be distributed between the defendant and his siblings. After an April 22 mention, and a subsequent hearing, on September 22 2016, the judge ruled in the participant's favor, ordering the land to be divided equally into 2 portions.

B8. Case 8: Physical Threats

Prior to their 40-year marriage, the participant's husband had been previously married to another woman, henceforth "the defendant". Prior to his death, he left a will entrusting the participant and her children as the sole beneficiaries to a 4-acre rice paddy in the Mwea irrigation scheme in the southern part of Kirinyaga County. The defendant and her children claimed that they were also entitled to a portion of the land and had been harassing and threatening the participant to stay off the land. The legal grounds to such a claim were tenuous since the rice paddy had been acquired long after he had re-married. The participant feared for her safety, leading her to temporarily lease out the land in dispute, rather than live on it and face the possibility of physical violence.

At the time of her first contact with the paralegals, the defendant had filed a case against the participant at the National Irrigation Board (NIB), the agency entrusted with managing farmland in the irrigation scheme. The participant was being prevented from formally obtaining a title on the rice paddy as, under Kenyan law, land currently under dispute cannot undergo a change of ownership. The participant felt this was done out of spite by the defendant, as she did not have the wherewithal to defend herself in court.

For the initial meeting with the lawyer in May 2014, the participant brought a copy of her husband's will. Because of prior threats of physical violence against the participant, the lawyer determined mediation would not be the best course of action. In June, our lawyer successfully petitioned the Wang'uru Law Courts and obtained a restraining order, temporarily preventing the defendant or her children from entering the land, under threat of arrest. Our lawyer also visited the NIB and formally listed herself as "advocate on record" for the participant in the case currently

being lodged against her.

The next hearing at the NIB between the participant and the defendant was set for July 22 2014. The day before, the participant met the lawyer at our Community Justice Center offices to go through her case and rehearse her arguments. The NIB ruled that the participant be awarded 3 acres of the land and the defendant's children receive remaining 1 acre. Satisfied with the 3 acres, the participant decided not to appeal the ruling. The lawyer returned to NIB on August 8 2014 to obtain official typed minutes of the decision. With the dispute resolved, the participant was finally able to complete the succession on the 3 acres of rice paddy, officially transferring ownership from her deceased husband to her own name.

B9. Case 9: Another Case of Illegal Exclusion from Succession

The participant's mother never married and he subsequently grew up as her only child on his maternal grandfather's farm. When she was alive, the participant's mother had initially been allocated 2 acres on which to raise crops though ownership was never formally established. The participant's mother died in 2006 and when his grandfather died in 2008, the participant was excluded by the rest of the family, henceforth the "defendants", from the succession. The estate's administrator—the participant's grandmother—planned to sell the parcel his mother had been tending, keeping the proceeds to herself. Under succession law, the participant was entitled to a portion of the estate.

The participant initially met the lawyer in May 2013 and brought supporting documentation: government identification and a local chief's letter claiming that he was indeed the grandson of the deceased. Our paralegals attempted to arrange an informal mediation session with the defendants but they refused. Having been unable to reach an out-of-court agreement, the lawyer drafted an affidavit of protest, which was subsequently stamped by a commissioner for oaths and filed in Kerugoya Law Courts. A hearing date was secured for February 25 2014 and the defendants were served with a notice.

At the initial hearing, the defendants' lawyer did not show up and the hearing was ultimately pushed back until November 4 2014. The day before the hearing, the participant met with the lawyer at the Justice Center to rehearse their arguments for the judge. The November 4 hearing went well, as the judged pointed out the participant did have cause. The judge suggested the family mediate out-of-court to find an amicable settlement. Upon taking the judge's advice, the parties were able to agree on a mode of distribution in line with what the participant wanted. He was given 2 acres under a consent which the defendants agreed to sign. By March 2015, all 3 defendants–the

participant's grandmother, and 2 of his aunts signed a consent granting him 2 acres of the family farm, more or less in line with the section his mother had always tended. On March 15 2015, the court officially endorsed the distribution and the participant was finally able to obtain a title deed to the land. The participant now has a secure claim to the land.

B10. Case 10: Legal Advice

The participant was one of 18 children: 13 sisters and 5 brothers. Her father owned 8 acres and, after his death, it was agreed by all parties (including the participant) that the 5 brothers each get an acre. The remaining 3 acres was to remain with the mother (who is still alive). The participant was married and had been living with her husband, away from her family farm, for several years. Her mother had recently told her that she planned on giving the 3 acres only to some of the 13 sisters and that the participant would not receive any land after she died.

The participant initially met with our lawyer on February 2 2016. She was advised that, as long as her mother was still alive and no succession was carried out, there was nothing legally that could be done. However, our lawyer took down the contact information of the participant's mother to see if a mediation session could be scheduled. Because the mother was frail and would have difficulty coming to the office, our lawyer visited the mother in person. During the meeting, she explained that, under Kenyan law, all children were entitled to a portion of their parents' estate. The mother subsequently promised to include all her daughters in the succession of the 3 acres. Though the participant was happy at her mother's change of heart, she was still worried that the land may have already been grabbed by one of her siblings. To allay her fears, we procured a search certificate for her, which showed that the 3 acres were still under the name of her deceased father. Furthermore, our lawyer advised her that, any succession that is not approved by all siblings is automatically null and void.

Appendix C: The Ten Cases with Invalid Claims

Case A: The participant claimed that his brother's son took away his the title deed and later sold a portion of the land without his consent. After 7 meetings, it became apparent that P. did actually remember gifting the land to his brother's son and signed for it, although he claimed he was forced to sign. Since P. signed off (gave consent) for the land there is no case because it was a valid contract/agreement.

Case B: The son had an elaborate story about the father. According to him, the father had no money for school fees, and received 20,000 Ksh from two individuals in exchange for the title deed to the land (as a collateral). Other people told them this was a ploy to grab the land. They reported the matter to a district officer, who confiscated the title deed and had the father repay the 20,000 Ksh. After 3 months the district officer was transferred from Kianyaga to another division and left the title deed in the office. The father received the notice letter to move offthe land. When he refused, he was thrown in jail for 2 years. The family found that all their houses had been destroyed.

Our lawyer asked for official documentation. After four meetings, the lawyer got the official documents. He saw that the father had sold the land for 170,000 Ksh in 1997 to a woman named Karen, who then filed for the participants to be evicted from the land. A court order for eviction was filed, which led to the participant's homes being destroyed in 2000. Our lawyer believes the father sold the land without the son's knowledge. Because the eviction was a court order, the lawyer doesn't believe she can do anything further to help them. In that case, the son was the expropriator and Karen was the investor.

Case C: The participant's father had 7 acres of land. The participant claims that the father appointed one of his relatives as a trustee to take care of the land until the participant was of age. The participant claims that the trustee's brothers are now occupying the land without offering a share to the participant. The lawyer got the green card (the official documentation showing the history of the plot's ownership), and discovered that the father gave the land as a gift to the purported "trustee" who is in fact the rightful owner. This was a valid transfer, and there is thus no legal cause of action.

Case D: According to the participant, the participant's husband sold 2 acres of land to brokers without the consent of his family members. There was no land transfer agreement. She is now staying at portion of land of one of her deceased son. The participant brought a green card that reflected that the land was sold back in 2001 which is 13 years now. This case is time-barred by the statute of limitations, with no valid claim.

Case E: The participant wants to challenge a succession which occurred back in 1995 since they were not included as beneficiaries. The participant's husband had an agreement with the deceased person that he was to use the four acres of land to pay school fees for the children of the deceased and later use it for his own purpose. Back in 1991, the person whom they had entered into an agreement died before he transferred the land to the participant. The wife of the deceased filed succession and did not include the participant's husband as one of the beneficiaries.

After 7 meetings, the lawyer discovered that a case had already been filed in court and a judgment had been entered against the participant. As such, the matter has no legal merit.

Case F: The participant took a loan and gave out land to the lender to use until the loan was repaid. She learned that the lender had transferred the land without her consent. However, the lawyer visited to court to peruse the case file and found evidence indicating that the pariticipand had in fact consented to give away the land.

Case G: The participant's husband died in 1992 and had nominated his son to take over his rice field following his death. There emerged a stranger who had managed to grab the rice field in collaboration with the chief. To date, they are the ones growing rice on the field. The lawyer went to court to peruse the matter. The lawyer found out that the matter had been finalized in the year 2002 and that the had estblished that the deceased had sold the property to a third party (the one who is tendind to the land now) and there was a proper sale agreement with witnesses attesting to it. The participant has no right to the property now. Hence this matter has no legal merit.

Case H: The participant wished to apply for succession. The participant's father got a loan from Kenya Finance Bank in 1984 (400,000 Ksh, approximately 400 USD). The participants have never repaid the loan, and the land was seized. Considering the loan had not been repaid, the land rightfully belonged to the bank. In this case, the participant was an expropriator, and the lawyer closed the case.

Case I: D.'s mother was unmarried. When he was 5 years old they went to reside on his grandmother's piece of land. They stayed in the grandmother's piece of land until the mother left to work far from home leaving D. behind. D.'s grandmother now wants D. to leave her land. D. feels that he ought to get a portion of the land as that is where he was brought up.

D. tried to talk to the grandmother about subdividing the land but she doesn't want to and doesn't even want him planting anything on the land. She claims that before D.'s grandfather died, he had said that D. should not be given a portion of the land. Later, D. went to the chief and reported the dispute. He does not want to go to the chief about sub-division because he feels he will not be impartial and he will take the grandmother's side.

The lawyer attempted a mediation session with the grandmother. She said that D. has brought a lot of damage to the family and no amount of mediation would soften her heart. She swears that D. cannot inherit anything or even get a portion of his late grandfather's land. She narrated how D. has been a menace to her and the family. She claimed that D.'s mother has been missing since 1995 and since then she has been taking care of him. She has paid his school fees in various schools which D. went after changing schools haphazardly. He eventually discontinued his education and no amount of persuasion made him go back. At one time, one of his aunts took him to a polytechnic at Mwea to study mechanical engineering and he left school midway. Since then he has been seen hanging idly around Kianyaga and comes home in the dead of the night hurling insults to the grandmother. This habit had started prior to his grandfather's death from cancer, he would come and insult the grandparents. His grandfather swore too that D. should not inherit anything. Lately he has been destroying things at home including window panes and the side mirrors of a vehicle in the homestead. He has been booked in the police station for more than five times for different offenses, one of which was an attempt to kill the grandmother. She was left with a scar on her chest. Seemingly, the information D. has been giving is scanty and we may not be able to help him further.

After 5 meetings, the lawyer told D. the claims that the grandmother made against him and he accepted the issue. We advised him to be polite to grandmother and to help her in her household activities for him to win her back. Also he should stop using abusive language to her.

Case J: A road was impassable because some sections cut across a swampy region. This made Kirinyaga county council divert the road through the participant's land and he was not compensated. He has written to the current county government but no action has taken place. The participant came to the office with the letter he drafted to send to the county government requesting compensation for the road that was built on his land. However, there are many concerns about this case. Firstly, the cadastral map shows that the road does not go through the participant's land. Secondly, the participant's letter requesting compensation was never successfully delivered. Thus, the participant has no proof that he has been actively trying to receive compensation since 1974.

Appendix D: Calibration of the model

TABLE D1—CALIBRATION OF THE MODEL

Parameters	Definition	Value	Source
Judiciary			
p	Probability to resolve the case	0.39	In our particular project, the cases are simple (exclusion from a succession, or land grabbing), and the theoretical probability to win in such cases is high. To be conservative, we use p=0.39, which is the actual probability to resolve the case experienced by the treatment group in this project. p=0.39 is in line with estimates from the Doing Business project, enforcing contracts, Kenya. In the Doing Business project, the quality of the judiciary 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. For example, one criteria is whether cases are randomly assigned to judges. Random assignment of cases guarantees that powerful parties cannot select the judge they prefer. In the model, this increases p. The value of this index for Kenya in 2016 was p=0.5. To be conservative, we use p=0.39.
T	Time to resolve a case	2	Median answer to the time it would take if going through the courts in a hypothetical scenario of land grabbing: "Imagine that you have the title deed to your plot, and then your neighbor attempts to grab the land in your plot. Let us say that you decide to use the judiciary. How long would the courts take to deal with your case?". In the Doing Business project, T=1.3 years, hence we choose the conservative estimate T= 2 years.
l	Cost (as a percent of claim)	0.42	Source: Doing Business project, Kenya, enforcing contracts, 2016. Local lawyers and judges are asked the cost and time it takes to solve a case of enforcing a contract.
β	Discount factor	0.9	Kenya's inflation rate was 8% over the period. To be conservative, we use a 10% discount rate. This is conservative since this will reduce the net present value of a recovery of the claim through the judiciary.
$p\beta^T - l$	Incentives to sue (fraction of output recovered)	-0.10	
Our intervention: zero lawyer fees			
l	Cost (as a percent of claim)	0.14	Source: Doing Business project, Kenya, enforcing contracts, 2016. Lawyer fees are estimated at 27.5 % of claim. Hence, 41.8-27.5=14.3%. The other two fees are court fees and enforcement fees. This is in line with estimates from our data. In our data, we estimate lawyer fees by asking people's perception of costs in a hypothetical scenario. "Imagine that you have the title deed to your plot, and then your neighbor attempts to grab the land in your plot. Let us say that you decide to use the judiciary. How much do you think lawyer fees would cost? How much would it cost you to try your case at the courts (excluding lawyer fees)?". The lawyer fees are 1888$, court fees 1209$, yearly income=2312$. Doing Business considers a case of 200% of income per capita, hence 2*2312=4624. Therefore lawyer fees are 1888/4624*100=67% of the case. Court fees are 1209/4624=26% of the case. According to these estimates, our intervention would represent a drop of 67-26=40% of the claim. To be conservative, we use the Doing Business measures, where the effect of the intervention is to reduce legal fees from 41.8% to 14.3%, a 27.5 percentage points drop.
$p\beta^T - l$	Incentives to sue (fraction of output recovered)	0.17	
Informal dispute resolution mechanisms			
p	Probability to resolve the case	0.17	Percentage of cases with an end date to the question "In the past 10 years, did you encounter any of disputes (Land grabbing, Succession, Housing/ eviction, Theft, Physical Attack)?" and with the following answers to the question "What did you do to resolve the dispute: Do Nothing, Private negotiation, Block leader/Elders, Chief/Sub-Chief, Mob justice, Hire vigilante, Go to witch-doctor, Harvest your crops earlier/faster, Go to influential friends, Other". This is conservative estimate since the actual probability to resolve cases in the control group was 3%. Thus, using 16 instead of 3% favors informal dispute resolution mechanisms over the judiciary.
T	Time to resolve a case	0.14	Median time of resolution through informal means (see above) to disputes in past 10 years.
l	Cost (as a percent of claim)	0	Only 4 percent answered yes to the question "To resolve the dispute, did you have to pay a bribe?" (conditional on resolving the case through informal means). To be conservative against the judiciary, we use a cost of zero for informal means.
$p\beta^T - l$	Incentives to sue (fraction of output recovered)	0.16	
Effort	$e = (p\beta^T - l)^2 \left(\frac{A}{2}\right)^2$	1.12	Effort increases by 12% (comparison: effort Intervention / effort Informal)

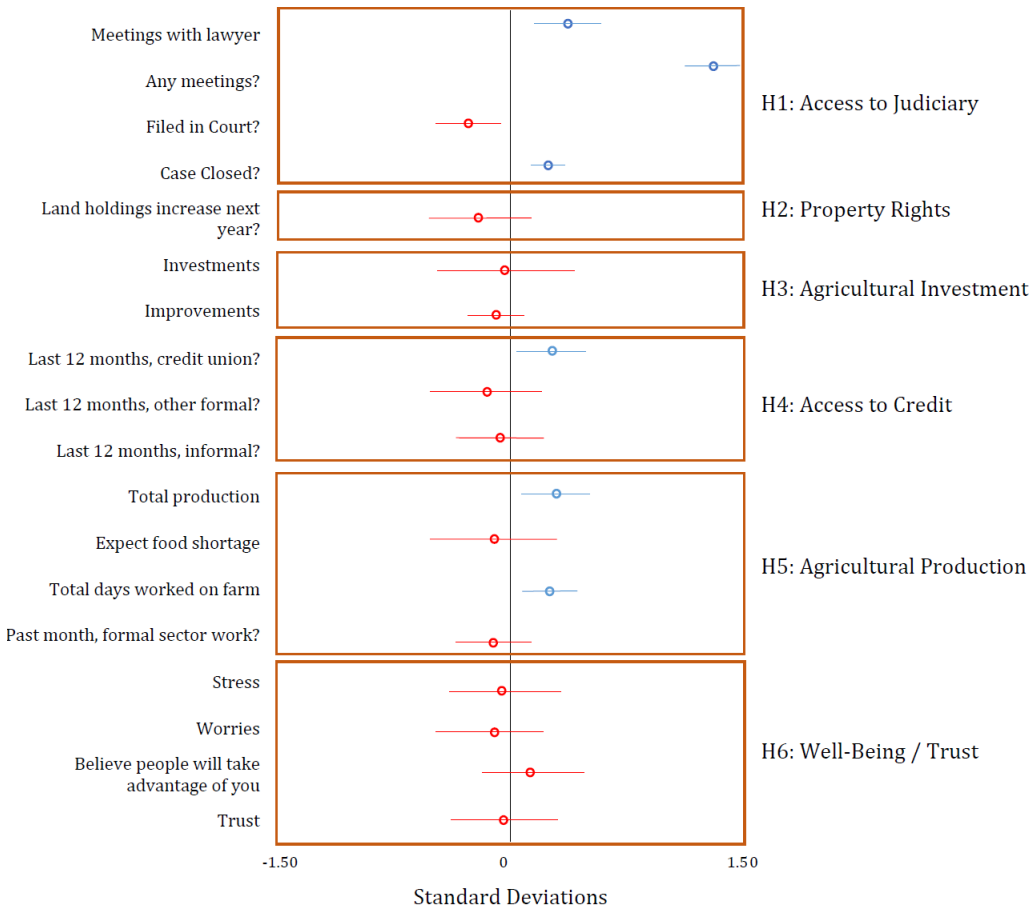
Appendix E: Pre-Analysis Plan

We wrote a pre-analysis plan before the endline was completed[20]. The first two hypotheses were checks to verify whether the intervention had its intended effect (hypothesis H1 was about the increase in the use of the judiciary, H2 was about the increase in the security of property rights). The next three hypotheses are directly predicted by the theory (H3: increase in investment, H4: increase in credit, and H5: increase in production). The last hypothesis (H6: improvement in well-being and trust) is not predicted by a theory, but these outcomes may be affected by access to the judiciary.

The full set of results is shown in figure E1 and tables E1, E2, and E4.

[20] AEARCTR-0001293, May 24, 2016

FIGURE E1. EFFECT SIZES OF PRINCIPAL HYPOTHESES



Note: The figure depicts the 90% confidence interval of effect sizes for 18 principal outcomes outlined in the pre-analysis plan. Each outcome falls under one of the 6 hypotheses noted in the pre-analysis plan (represented here by the rectangles).

Table E1—Hypothesis 1 - Secondary treatment effects of legal aid

	Treatment Effect	(SE)	Mean control	(SD)
(1) Legal System Will Uphold Property Rights	0.11	(0.67)	4.06	(1.18)
(2) Access to Courts Increased in Past 3 Years	-0.05	(0.37)	2.06	(0.84)
(3) Days To Deal With Hypothetical Case	666	(564)	1779	(1954)
(4) Likelihood of Hiring Lawyer in Hypothetical Case	0.42*	(0.17)	3.24	(1.54)
(5) Cost of Lawyer Fees in Hypothetical Case	564	(531)	2,342	(3,569)
(6) Likelihood of Bribing Lawyer in Hypothetical Case	0.05	(0.06)	1.08	(0.48)
(7) Cost of Bribes with Lawyer in Hypothetical Case	1,477	(2886)	1,288	(919)
(8) Likelihood of Bribes Without Lawyer in Hypothetical Case	-0.34**	(0.16)	1.61	(1.24)
(9) Cost of Bribes Without Lawyer in Hypothetical Case	-1,363	(2,500)	1254	(1472)
(10) Cost of Taking Case to Court in Hypothetical Case	294	(341)	927	(1496)
(11) Use Title Deed to Protect Land	0.08**	(0.03)	0.01	(0.13)
(12) Use Formal Means in Recent Land Grabbing dispute	0.14	(0.18)	0.63	(0.49)
(13) Use Formal Means in Recent Succession dispute	-0.35	(0.34)	0.65	(0.49)
(14) Use Formal Means in Recent Housing/Eviction dispute	0.50	(0.45)	0.67	(0.58)
(15) Formal Resolution to Hypothetical Land Grabbing dispute	0.09	(0.07)	0.27	(0.44)
(16) Common to Bribe Government Officials	0.35*	(0.20)	3.78	(1.46)
(17) Common to Bribe in Courts	0.09	(0.18)	4.09	(1.18)
(18) Common to Bribe Police	0.25	(0.18)	4.16	(1.07)
(19) Common for Police to Demand Bribe	0.40**	(0.19)	4.06	(1.23)
(20) When Bribe Paid, Services Delivered as Agreed?	0.04	(0.20)	3.68	(1.18)
(21) When Bribe Paid, Services Not Delivered as Agreed?	0.28	(0.22)	3.60	(1.21)
(22) When Bribe Paid, Public Officials Seek Further Payment?	-0.01	(0.21)	3.59	(1.22)
(23) Government Officials Respond Appropriately to Corruption	0.12	(0.22)	3.62	(1.36)
(24) Head of Police Responds Appropriately to Corruption	-0.02	(0.17)	3.36	(1.42)
(25) Bribery Helpful	0.12	(0.17)	1.70	(1.38)
(26) Bribery Harmful	0.01	(0.23)	2.98	(1.88)
(27) Last 3 Years, Problems With Govt Officials Have Increased	0.13	(0.11)	2.10	(0.88)
(28) Last 3 Years, Corruption in Govt Has Increased	-0.11	(0.14)	2.11	(0.89)
(29) Last 3 Years, Corruption in Police Has Increased	-0.10	(0.12)	2.27	(0.80)
(30) Total Legal Knowledge	-0.10	(0.32)	6.38	(1.55)

Note: The treatment effect column presents estimates β_2 from equation (1) presented in the main body of the paper. All costs expressed in USD PPP. Outcomes (1), (2), and (16) to (29) represent levels of agreement with each of the statements scaled from 1 (completely agree) to 5 (completely disagree). Outcomes measuring likelihood (4, 6, and 8) are scaled from 1 (very unlikely) to 5 (very likely). Outcomes (12) to (15) represent dichotomous variables that each equal 1 if the respondent used formal means to resolve the stated dispute, and 0 otherwise. "Formal" resolutions to disputes include any of the following: go to law courts, go to police, or go to land tribunal. Control group means are from endline.

Appendix F: General Equilibrium Effects

Consider the simple case of expropriation on the plot of land, and protection by the judiciary. Effort is: $e^* = \left[\frac{(p\beta^T - l_p)A}{2}\right]^2$, and output is $\frac{(p\beta^T - l_p)A^2}{2}$. It is easy to see that if l_p decreases, then e^* and output increase.

The problem is that this is only a partial equilibrium result. In a general equilibrium, T and l_p are linked: if l_p decreases, then the number of cases filed may increase, which reduces speed. Note that, as explained in the paper, it is not always true that the number of cases filed would increase. They will increase only if $p\beta^T$ is sufficiently low. If $p\beta^T$ is high, then the expropriator does not expropriate, the farmer does not sue: there are no cases filed. We thus focus on the case where $p\beta^T$ is low. In that case, the number of cases filed increases. The time it takes to solve a case T is equal to the ratio of the number of cases pending in the system divided by the number of cases resolved in a year. Suppose there are N farmers in the economy. In the extreme case, the offer of a free legal representation entices all N farmers to sue. Thus, if l_p decreases, T dramatically increases, and effort may remain the same since $e^* = \left[\frac{(p\beta^T - l_p)A}{2}\right]^2$. The evolution of l_p and T may cancel each other out.

One solution is to tax the farmer's surplus to finance both the policy of free representation, and an improvement in the judiciary to address the influx of cases. In the framework of Besley and Ghatak (2009), we suppose first a caring government, i.e., a government caring about the farmer's surplus with a certain weight. In the extreme case where the government values equally the farmer's and the expropriator's welfare, the government is indifferent about the exact level of expropriation (see Besley and Ghatak (2009), p.4576). In that case, the government's only objective is to satisfy the budget constraint. The government's revenue per farmer is the taxation of output at a rate t, i.e. $tA\sqrt{e}$. The government needs to finance legal representation: $l_p\frac{A^2}{2}$, and the judiciary.

We model the judiciary in the simplest way: the cost of the judiciary is solely the wage bill of judicial officers. This is a reasonable assumption since according to CEPEJ, the wage bill of judges accounts for between 50 and 90 percent of the judiciary's budget in European countries (p.25 European Judicial Systems 2010, European Commission for the Efficiency of Justice (CEPEJ)). The cost of the judiciary is wn, where w is the wage of a judge, and n is the number of judges. One judge resolves s cases per year (s for solved or speed). s is considered exogenous. It is the procedural time needed to resolve a case (which includes the discovery of evidence, hearings, writing of judgment). A total of ns cases are resolved per year. If there are N cases filed, it takes $T = \frac{N}{ns}$ years to resolve all cases. Thus, the cost of the judiciary per capita is $\frac{w.n}{N}$, which is also equal to $\frac{w.\frac{N}{Ts}}{N}$, in other words $\frac{w}{T.s}$. The budget constraint is $tA\sqrt{e} > l_p\frac{A^2}{2} + \frac{w}{T.s}$.

What is the effort level under taxation and no legal fees for the farmer? The maximization problem is:

$$max_e(1-t)p\beta^T A\sqrt{e} - e$$

Which leads to the equilibrium effort level: $e^* = \left[\frac{(1-t)p\beta^T A}{2}\right]^2$. Thus the budget constraint is: $\frac{t(1-t)p\beta^T A^2}{2} > l_p\frac{A^2}{2} + \frac{w}{T.s}$.

The left-hand side is the Laffer curve. We are only interested in the possibility of such a scheme, thus we consider the maximum value of the left-hand side reached at $t = \frac{1}{2}$, and evaluate whether the inequality holds. At $t = \frac{1}{2}$, we have $\frac{1}{4}\frac{p\beta^T A^2}{2} > l_p\frac{A^2}{2} + \frac{w}{T.s}$. After some manipulation, this delivers a condition on A: $A^2 > \frac{8w}{(\beta^T - 4l_p)Ts}$. Thus, only sufficiently productive businesses will find it profitable to finance a judiciary. This is understandable since more productive businesses stand to gain more from a functioning judiciary.

This model thus highlights two conditions for such an outcome: 1) caring governments, and 2) productive businesses. In practice, these two conditions may be linked. The fundamental insight of Acemoglu and Robinson (2013) is that when a broad cross section of society enrich themselves, they acquire political power, and with this political power demand more inclusive political institutions. In turn, these inclusive political institutions set up more inclusive economic institutions, such as an accessible judiciary, since they directly benefit from the protection granted by the judiciary. Finally, a more accessible judiciary fosters economic growth as shown in this paper.

This reasoning creates a positive feedback loop: rich countries have inclusive political institutions and high-quality judiciaries, which further increases growth. Poor countries have extractive political institutions and low-quality judiciaries, which does not encourage growth and leaves these countries stuck in poverty traps. This positive feedback loop helps explain the observed positive correlation between democracy and the rule of law, and GDP and the rule of law.

The policy implications are striking. According to this model, autocracies have a vested interest in low-quality judiciaries since they depress output and prevent a broad cross-section of society from acquiring political power, and topple them. Thus autocracies will be unwilling to invest sufficient resources in the judiciary. If judiciaries are not financed by taxation, foreign aid might play a role. Foreign aid financing both legal representation and the cost of the judiciary ($l_p\frac{A^2}{2} + \frac{w}{T.s}$) may kick-start a virtuous positive feedback loop. Chemin (2017) evaluates this claim empirically by evaluating the impact of judicial reforms on economic activity.

Appendix G: Cost of Legal Aid Provision

Table G1 below describes the monthly costs involved in maintaining the Community Justice Center in Kianyaga for 2 years. The Center cost $2,944.32 a month, a large portion of which went to paying the salaries of the lawyer and paralegals. 191 respondents from the treatment group were given some of form of assistance. Annually, the cost of legal aid provision per participant is $189.96, roughly 8% of household income.

Appendix H: Calculation of Stress and Worries

As noted in the main body of the paper, we were interested to know if our intervention caused any unintended consequences. In particular, we wanted to know if treated individuals who received the free services of a lawyer would experience more stress or worries. This might arise, for instance, when an individual seeking to secure their property rights, draws the ire of community and/or family members. As shown in Table 6 in the paper's main body this was not the case. The subsections below describe how stress and worries were calculated.

H1. Stress

Stress was measured using the ten question Perceived Stress Scale (PSS10), a widely-used measure of stress. As shown in Table H1 below, the scale represents an aggregate of answers to ten questions, each scored from 1 to 5. A score of 10 out of 50 would be lowest would be the lowest possible self-reported measure of stress whereas 50 out of 50 would be the greatest.

H2. Worries

Worries were measured by aggregating across 15 individual worries. These are listed in Table H2. Each worry was measured from 1 (not all worried) to 4 (very worried). A score of 15 out of 60 would be the lowest possible, whereas 60 out of 60 would indicate the highest level of worrying.

Table E2—Hypothesis 1 - Secondary Treatment Effects on Perceptions of Judiciary

	Treatment effect (SE)	Mean control group (SD)
Court System Fair & Impartial	-0.05	3.12
	(0.16)	(1.20)
Court System Affordable	0.11	2.39
	(0.21)	(1.18)
Court System Honest & Incorruptible	-0.21	3.05
	(0.18)	(1.16)
Court System Consistent	0.07	2.77
	(0.19)	(1.20)
Court System Quick	0.20	2.25
	(0.20)	(1.13)
Court System Enforces Its Decisions	0.08	3.28
	(0.16)	(1.12)

Note: "On a scale of 1 to 5, where 1 means never and 5 means always, in resolving land disputes, do you believe your country's court system to be ..... " The treatment effect column presents estimates β_2 from equation (1) presented in the main body of the paper. Control group means are from endline.

Table E3—Treatment Effects on Types of dispute in the Past Year

	Treatment Effect (SE)	Mean Control Group (SD)
Land Grabbing	-0.15**	0.24
	(0.06)	(0.29)
Succession	-0.01	0.06
	(0.03)	(0.24)
Housing or Eviction	0.00	0.02
	(0.01)	(0.13)
Theft	-0.03**	0.02
	(0.02)	(0.16)
Physical Attack	0.02	0.01
	(0.96)	(0.09)

Note: The treatment effect column presents estimates β_2 from equation (1) presented in the main body of the paper. Control group means are from endline. Each of the 5 variables above takes a value of 1 if the respondent experienced the type of dispute listed in the past year, and a value of 0 otherwise.

Table E4—Hypothesis 2-Secondary Treatment Effects of Legal Aid

	Treatment Effect	(SE)	Mean Control	(SD)
(1) Sell Plot Without Family Approval	0.01	(0.06)	0.12	(0.33)
(2) Sell Plot With Family Approval	-0.07	(0.10)	0.53	(0.50)
(3) Rent Plot Without Family Approval	0.04	(0.07)	0.17	(0.38)
(4) Rent Plot With Family Approval	0.02	(0.06)	0.65	(0.48)
(5) Take out Loans on Plot Without Family Approval	0.05	(0.10)	0.14	(0.35)
(6) Take out Loans on Plot With Family Approval	0.02	(0.06)	0.55	(0.50)
(7) Cultivate on Plot Without Family Approval	-0.12	(0.08)	0.72	(0.45)
(8) Cultivate on Plot With Family Approval	-0.14**	(0.06)	0.94	(0.24)
(9) Leave Plot on Will Without Family Approval	0.11	(0.08)	0.20	(0.40)
(10) Leave Plot on Will With Family Approval	-0.03	(0.10)	0.59	(0.49)
(11) Gift Plot Without Family Approval	0.01	(0.06)	0.15	(0.36)
(12) Gift Plot With Family Approval	-0.03	(0.11)	0.57	(0.50)
(13) Homestead Divided Into Formal Titles	-0.09	(0.32)	0.83	(1.12)
(14) Fencing Around Homestead	-3.84	(3.31)	5.48	(39.95)
(15) Feel Safe Outside Homestead During Night	-0.32	(0.21)	2.61	(1.41)
(16) Feel Safe Outside Homestead During Day	-0.24	(0.18)	4.09	(1.07)
(17) Feel Safe Inside Homestead During Night	0.14	(0.20)	3.49	(1.29)
(18) Feel Safe Inside Homestead During Day	-0.08	(0.17)	4.35	(0.97)

Note: The treatment effect column presents estimates β_2 from equation (1) presented in the main body of the paper. Control group means are from endline. Outcomes (1) to (12) concern the primary plot of the respondent's farm. They are dichotomous variables that equal 1 if the respondent does have the right as listed and 0 otherwise. Outcome (13) is a dichotomous variable taking a value of 1 if the respondent's homestead is divided into formal titles and 0 otherwise. Outcome (14) is measured in USD PPP. Self-reported safety in outcomes (15) to (18) is measured from 1 (very unsafe) to 5 (very safe).

Table G1—Monthly cost of legal aid provision

Item	Monthly Cost (USD)
(1) Lawyer Salary	1,590.91
(2) Office Rent	272.73
(3) Court Fees (avg)	35.23
(4) Lawyer Transit (avg)	90.91
(5) Paralegal Salaries	954.55
Total	2,944.33

Note: All costs compiled using USD PPP = 44 KSH. Items (3) and (4) are obtained by dividing the total amounts spent on court fees and transit, respectively, by 24, the number of months that the intervention took place.

Table H1—PSS10

(1) Have you been angered by issues that happened to someone you least expected?	/5
(2) Have you felt like giving up on important issues in life?	/5
(3) Have you felt troubled mentally and your body not fit?	/5
(4) Have you felt courageous enough to tackle life's problems?	/5
(5) Have you felt things go the way you would like them to?	/5
(6) Have you felt like you want to give up on issues that you ought to be struggling with?	/5
(7) Have you overcome your day to day problems?	/5
(8) Have you felt your life go the way it should?	/5
(9) Have you been angered by things that happened and they proved to be difficult for you?	/5
(10) Have you had problems that are beyond your capacity to solve?	/5
TOTAL:	/50

Note: Questions (1), (2), (3), (6), (7), (9), and (10) are scored as follow: 1 = Always 2 = I feel that many times 3 = I feel that sometimes 4= Sometimes but not always 5 = It's hard for me to think along that line . Questions (4), (5), (8), are scored in the reverse order: 5 = Always 4 = I feel that many times 3 = I feel that sometimes 2= Sometimes but not always 1 = It's hard for me to think along that line.

Table H2—Worries

(1) Health problems, illness	/4
(2) Problems at home with relatives	/4
(3) Problems in the workplace	/4
(4) Accidents and disasters	/4
(5) Ethnic tensions	/4
(6) Not enough money for food	/4
(7) Not enough money for education	/4
(8) Not enough money for living expenses	/4
(9) Not enough money for medicines and medical treatment	/4
(10) Difficulty in finding work	/4
(11) Idleness of children or spouse	/4
(12) Alcohol consumption of children or spouse	/4
(13) Death of a family member	/4
(14) Debts owed to others	/4
(15) Other (specify)	/4
TOTAL:	/60

Note: All questions are scored as follows: 1 = Not at all worried 2 = Not very worried 3 = Somewhat worried 4 = Very worried