

Does Legal Representation Increase Investment? Evidence from a Field 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. Yet, the high costs of access to the legal system may prevent these gains from taking place. This paper presents the results of a randomized intervention offering the services of a free lawyer for 2 years in a rural setting with prohibitive lawyer fees and numerous land disputes. Not all cases were fully resolved after 2 years, but legal representation increased the security of property rights, which translated into greater access to credit and agricultural production.

Institutions, defined as “the rules of the game”, matter for economic development (North, 1990; Acemoglu, Johnson and Robinson, 2001; Acemoglu and Robinson, 2013). If property rights are secure and contracts enforced, those with good ideas will work hard and undertake investments, secure in the knowledge that the fruits of their effort will accrue to them. In this theory, the legal system occupies a central role since people rely on courts as a last resort when there is a dispute on property rights or contracts. In developing countries, access to the legal system is notoriously expensive, courts may be corrupt and slow (Djankov et al., 2003; Glaeser, Ponzetto and Shleifer, 2016). The claim is that these defects of the legal system cause poor economic performance. It is difficult empirically to test this theory because the expensive, corrupt and slow nature of legal systems is not exogenous. For example, the theory of institutions (Acemoglu and Robinson, 2013) posits that these characteristics of legal systems are fundamentally driven by the nature of political institutions: small ruling elites may prefer dysfunctional judiciaries since they can then use their superior power and financial resources to steal, expropriate or exploit without any fear of being prosecuted. Small ruling elites may also negatively affect economic performance for a host of other

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reasons. Thus, the nature of political institutions may be driving both phenomena and generate a spurious correlation between the legal system and economic performance if it were omitted from the analysis.

To address these endogeneity issues, researchers have resorted to natural experiments in which they examined legal reforms implemented in certain places and time periods in a difference-in-differences framework to isolate the causal impact of access to the legal system on economic activity (Chemin, 2009*b,a*, 2010, 2018; Kondylis and Stein, 2017; Lilienfeld-Toal, Mookherjee and Visaria, 2012; Lichand and Soares, 2014). Much of this literature has found large positive effects on investment, access to credit, and economic growth. Yet, the question remains as to why legal reforms were implemented in these particular places and time periods. 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 legal systems. 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).

In this paper, we test in a randomized experiment whether reducing the costs of access to the legal system increases the incentives to invest in a sample of 1,113 small-scale farmers in rural Kenya. The main treatment consisted of giving free legal representation to participants involved in a civil dispute with legal merit. They were compared to a control group of equally eligible participants who did not receive free legal representation (but who were given a list of legal aid organizations offering pro-bono lawyers).

To recruit our participants, we faced the choice of initiating contact with participants or letting people initiate contact. In their seminal paper on a randomized legal representation intervention for labor disputes in the United States, Greiner and Pattanayak (2011) found that letting the claimant initiate contact led to the self-selection of cases most likely to win. To avoid this issue, our intervention initiated contact with participants. A team of paralegals canvassed an area door-to-door to assemble the universe of on-going disputes. The paralegals gathered details of the dispute and assisted in acquiring official documentation backing the claims. A lawyer then met extensively with participants to understand more about the situation and build a case. Not all disputes were eligible for the intervention. In some disputes, our interlocutor was the party engaging in illegal actions, for example, by encroaching on the land of their neighbors. In others, there was no official documentation despite the paralegals and lawyers' efforts to track such documents. In the final analysis, 30 percent of the visited households were involved in an eligible dispute, i.e., with proper documents and legal merit. The households not involved in a legal conflict at the time were included

in another randomized experiment giving the treatment group a legal information session on a topic deemed relevant to their circumstances and nothing to the control group. Overall, our recruitment process did not select the cases most likely to win, but gathered the universe of on-going cases.

To resolve the dispute, a team of four lawyers then followed all the steps of the protocol taught in Kenyan law schools. They first organized mediation sessions to reach an out-of-court agreement. If this failed, they implemented formal legal procedures in court. To be fully transparent about the experimental design, the lawyers offered legal representation only to the participating households with legal merit, not to the other party, for two reasons. First, the disputes in rural Kenya where this project was implemented are quite simple and clear-cut. The typical dispute consists of a farmer with a legitimate claim to the land, but whose land is encroached or grabbed illegally by another individual. In this particular situation, there is considerable uncertainty in property rights: the farmer does not know whether s/he will capture the fruits of their effort. An extensive literature has shown that this insecurity in property rights decreases the incentives to invest (Besley, 1995; Goldstein et al., 2018). The goal of this paper is to study whether access to legal representation will reassure participants about their property rights, and thereby will increase investment. Offering legal representation to the other party would study another question, i.e., whether legal representation increases the incentives to expropriate. Second, for ethical reasons, it would have been difficult to justify defending parties engaging in illegal activities such as encroaching their neighbors' land. In fact, the lawyers refused to represent parties engaged in illegal behavior. Despite all these efforts, in 10 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 10 cases, the lawyer advised the respondent about the illegality of their actions and the intervention was stopped. To the extent that these 10 cases 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 legal representation.

Resolving land disputes is a slow process in Kenya, and two years after the start of the intervention, very few cases were fully resolved. Despite the low resolution rate, the treatment group reports having a greater access to the formal system to defend their land. The experiment is thus best thought as moving the treatment group towards the formal system, while the control group has very limited access to it. The goal of the experiment is to test whether this translates into greater investment on the land cultivated. The context of rural Kenya represents a hard test for this theory. The country ranks 95 out of 113 countries on the World Justice Project's Rule of Law index, and 105 out of 113 on absence of corruption. There are numerous alternative ways

to defend a plot of land from expropriation, for example by planting trees to demarcate better the land (Besley, 1995). Numerous alternative conflict resolution mechanisms are available: local elders, chiefs, and local officials.

Despite the legal system's flaws and existence of alternatives, we find that two years after the start of the intervention, treated households felt more secure about their property rights. As a result, they increased effort on their plot of land (a 17 percent increase in days worked on the land), invested more, were able to access more credit to finance long-run productive investments, and increased their agricultural production. These effects are not merely due to farmers not having land at baseline and acquiring land at endline since in our sample, most of the farmers work on their land at baseline and there is no increase in land size by endline. Additionally, we found no increase in physical violence against the treatment group and no increase in stress and worries. 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. In contrast, we find that providing legal information sessions has very limited effects. This indicates that legal representation, not information about one's rights, limits people in accessing the formal 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, at 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 himself was 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 because 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 paper contributes to a recent literature analyzing the effects of access to legal representation. In the United States, Greiner and Pattanayak (2011); Greiner, Pattanayak and Hennessy (2012); Seron et al. (2001); Stapleton and Teitelbaum (1972) look at the effect of legal representation on win rates. In our paper, we ask another question: what is the effect of access to legal representation on the subsequent incentives to exert effort and invest? Our paper thus directly tests the theory that the legal system shapes economic activity. Our paper confirms the findings of a burgeoning literature on the economic effects of access to the legal system. 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*), respectively, find that more efficient judiciaries increased access to credit. Overall, the accumulation of evidence using different methodologies in different contexts all point towards positive effects of access to 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, nor do they 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 to begin with (as is the case in this study), there are few incentives to hold a formal title.

It is difficult to draw policy implications from our paper since our result is a partial equilibrium one. 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. Any reform improving access to the legal system should probably be coupled with simultaneous improvements in court efficiency, as has been found in Chemin (2018). In any case, the purpose of our paper was not to formulate policy implications, but to test a theory: whether or not access to legal representation increases the security of property rights and the incentives to 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 intervention, i.e., what the lawyer does. Section V presents the results. Section VII discusses those results, while section VIII concludes.

I. Conceptual framework

Suppose a producer (an entrepreneur or a farmer, hereafter called “the producer”) faces the choice of investing to produce an output that can then be appropriated by a powerful individual or predatory government, called the “expropriator”. In the absence of any sanctions, the expropriator expropriates, and the producer does not invest. The issue is that the expropriator lacks a credible way to commit to not expropriate. This outcome is inefficient since no production takes place and there is nothing to expropriate (see the formal model in Appendix A).

One solution to this issue is a legal system sanctioning in case of expropriation and protecting the interests of the producer. If the powerful individual or government expropriates, the producer can use the formal legal system and recover (part of) the amount grabbed. If the gain from suing (equal to the net present value of damages recovered after the verdict is given, multiplied by the probability to win the case) is greater than the costs of suing (lawyer’s fee, court fees, enforcement costs), then the individual will sue.

In this model, an exogenous decrease in legal fees for the producer increases the incentives to sue. Reducing the legal fees to zero could incentivize a producer who would have not sued to go to court. Whether or not this happens depends on multiple parameters, such as the quality of courts and informal conflict resolution mechanisms. In Appendix B, we calibrate our model using data on courts from the Doing Business project in Kenya¹, and data on informal conflict resolution mechanisms from our household survey. We simulate the effects of lowering lawyer fees to zero and find that such an intervention would theoretically switch the incentives to sue from negative to positive.²

We test empirically this proposition in our paper: we check whether lowering legal fees to zero increases contact with a lawyer and use of the formal legal system (hypothesis H1 of our pre-analysis plan).³

Continuing the reasoning, the producer sues and recovers part of the amount grabbed. In practice, this may thus increase the security of property rights (our hypothesis H2) since the producer is more confident that the fruits of their effort will accrue to them.

Considering a greater part of the output produced reverts back to the producer, he invests more

¹See <http://www.doingbusiness.org/>

²More globally, we repeat this exercise for all countries in the World in Appendix A. Most countries in the World would switch from negative to positive incentives to sue because of such an intervention (see panels (a) and (b) of Figure A1).

³AEARCTR-0001293, May 24, 2016, written before the endline was completed.

in the first place. We show in the appendix that investment is a negative function of legal fees (see appendix A). This is hypothesis H3 in the pre-analysis plan.

Access to the legal system may also have an effect on access to credit. Credit unions are the most important source of formal finance in Kenya (called savings and credit cooperatives, SACCOs, in Kenya).⁴ This is also true in our sample. 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 emergencies.⁵ The main source of collateral for these credit union loans is the harvest. Thus, reducing legal fees to zero increases the harvest (by the reasoning above) which increases the collateral. A standard moral hazard model thus predicts an increase in access to credit (see Appendix C for a formal model). This is hypothesis H4 in the pre-analysis plan.

Overall, an increase in effort, investment, access to credit for long-term productive investments will increase output. This is hypothesis H5 in the pre-analysis plan.

Finally, we had included in our pre-analysis plan other outcomes less grounded in economic theory but nonetheless important, such as stress, depression, worries, or trust. The hypothesis was that access to the legal system may reduce stress and worries by resolving long-standing disputes. Alternatively, Blattman, Hartman and Blair (2014) finds that the provision of conflict resolution mechanisms starts conflicts from newly empowered individuals. Thus, stress and worries may increase with access to the legal system for some. Another important hypothesis concerns trust: the formal legal system may increase trust in others, thereby favoring impersonal exchanges. These are hypotheses H6 in the pre-analysis plan.

Importantly, our model in Appendix A shows that a decrease in legal fees for the expropriator would have the opposite effect of reducing investment by the producer since it would increase the incentives to expropriate. This informs our experiment: the goal of this paper is to check the theory according to which access to the legal system increases investment, not to check whether decreasing legal fees for expropriators increases expropriation, which would reduce investment. Thus, one should decrease legal fees for the producer, not for the expropriator. In the section describing the intervention, we show how, in practice, the team of lawyers and paralegals differentiated between producers and expropriators - essentially by asking for official documentation to establish the validity and legality of the claims.

⁴Table 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).

⁵Tables 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).

II. The Setting

To test the theory that access to a lawyer increases the use of the formal legal system (H1), the security of property rights (H2), investment (H3), access to credit (H4) and output (H5), one needs a setting with numerous disputes, in a place with no incentives to access the legal system because of very high legal fees. Rural Kenya provides the ideal setting to test this theory.

A. Land disputes

Land disputes are rife in Kenya. At independence in 1963, 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. This is in line with estimates in our study. Aliber and Walker (2006) report that between 33 to 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., 2018).

Our project was implemented in a small rural community of Kenya called Kianyaga, 3 hours north of Nairobi. This community is representative of the rural Central Province of Kenya, an area comprising more than 3 million people (see Chemin (2017)).⁶ Most people are small-scale farmers, cultivating one plot of land, and living near the poverty line of 2\$ a day per capita. 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).

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

⁶Table Appendix 1 in that paper shows that basic socioeconomic characteristics, such as age, marital status, asset ownership, access to water, are in the same order of magnitude as in the 2009 Census. Results are similar when using the 2005 Kenya Integrated Household Budget Survey (KIHBS) and the 2008 Demographic and Health Survey (DHS).

lawyer fees to be 90 percent of a household’s annual income.⁷

These estimates are in line with the minimum fees that lawyers can charge in Kenya, as regulated by the “Advocates Remuneration Order (2014)”.⁸ The official reason for these price floors is to attract the best candidates to the legal profession and compensate lawyers fairly.⁹ Another explanation would be that small ruling elites find it convenient to exclude the general population from access to the legal system in order to steal, expropriate or exploit without any fear of being prosecuted (Acemoglu and Robinson, 2013).

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. 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). Thus, it appears that expense rather than other defects of the courts such as quality and speed is the major issue. 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, who will refer to as Sarah, which illustrates a typical dispute as well as the informal resolution mechanisms in place. Sarah is a single mother of 3 boys. She farms on her family’s land (and lives at the poverty line of 2\$ a 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 rest of her family did not obey. This case exemplifies the limits of informal dispute resolution mechanisms: decisions can be difficult to enforce.

⁷We 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 2088\$, and court fees at 1509\$. These amounts are very large compared to the average annual household income of 2312\$.

⁸For example, the minimum fee for a dispute of the lowest value is Ksh75,000 (Schedule 6, 2, b), which corresponds to \$1,705, close to \$1888 as estimated by farmers.

⁹<https://www.standardmedia.co.ke/article/2000109691/kenyans-to-pay-more-for-litigation>

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, which was approximately equal to 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 with no connections to the elite. In terms of the parameters of our model, the probability p of winning might be very low for such 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. The Interventions

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 intervention. We then provide some descriptive statistics of the sample.

A. Recruitment of Participants for Main Intervention on Legal Representation

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 an administrative subdivision called a “location” around our offices.¹⁰ In each location, the goal was to assemble the universe of disputes. To capture all disputes, we followed three strategies: 1) canvassing each and every house door-to-door, 2) asking respondents to refer us to people they knew who were engaged in disputes, and 3) asking the local Chief or council of elders to refer us to 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 focused on 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 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

¹⁰Locations 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.

invest. Thus, it is important to classify between investors and expropriators to test this theory.

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 claim. From our sample, the team of paralegals excluded any individuals 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 who 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 to 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 offices constituted the pool of participants for this intervention.

Considering the intensive nature of the experiment (explained in greater details below), we expected large effects, which would have justified the high costs of lawyer wages in the experiment. Statistical power calculations indicated that sample size of 344 was enough to detect effects commensurate with the costs of the experiment.¹¹

B. Main Intervention: Legal Representation

The intervention consisted in offering a free lawyer for 2 years to resolve disputes of a randomized treatment group. For the purpose of this intervention, we opened a “Community Justice Centre” with a lawyer hired full-time to serve all the participants of the treatment group, following the model of our partnering NGO called Kituo Cha Sheria, a free legal aid organization in Kenya. To hire the lawyer, we advertised the position with the help of Kituo Cha Sheria, at the on-going wage for lawyers who recently graduated from the Kenyan Law School. We always hired the first candidate that fulfilled the requirements of: 1) having graduated from the Kenyan Law School, and 2) speaking Kikuyu (the local dialect) to be able to converse with the participants. As explained above, the typical dispute in this community is very simple (e.g., a neighbor grabbing the land despite the plaintiff’s valid legal claim). This intervention did not necessitate particularly experienced lawyers which explains why we recruited recent graduates.

In the control group, people can of course self-represent in courts if they cannot afford a lawyer. Yet, the lawyer was critical for four reasons. First, the lawyer organized mediation sessions which

¹¹As indicated in the pre-analysis plan, the planned sample size was 344. It was estimated that each participant in the treatment group would receive legal aid from paralegals 2 days valued at 600 Ksh/day*2 days=1,200 Ksh, and from the lawyer 52 days/172 participants= 0.3 days at 6200 Ksh/day, hence 1,875 Ksh. This corresponds to an overall aid of 3,075 Ksh. We were thus interested in detecting an increase of at least 3,075 Ksh on household expenditure; otherwise the benefits, despite being statistically significant, would be less than the costs of the intervention. Statistical power calculations indicate that the sample size of 344 was enough to detect such an increase in household expenditures.

succeeded in some cases because of the credible threat of initiating legal proceedings. In case 1 (explained in greater detail in Appendix D), a neighbor was tending a portion of the participant's land. The neighbor always promised to discuss the matter, only to never show up. The lawyer organized a mediation session, the neighbor agreed, cement beacons were placed on the boundary, and the neighbor has since then respected the boundary. Other times, mediation proved more difficult, but sometimes succeeded once the threat of going to court was made credible by the lawyer. For example in Case 2, the other party initially refused mediation but later accepted after the lawyer initiated legal proceedings and informed the defendant in writing of an impending hearing date in court. In Case 3, the mediation failed, but a judge suggested an out-of-court settlement, the defendant agreed and the parties were able to reach an agreement.

Second, the lawyer used their knowledge of the law to resolve disputes. 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 participant was unaware of this legal technicality, and the lawyer was critical in thinking about this option.

Third, the lawyer was critical to navigate the numerous and complex steps of the judiciary, which are unknown to non-specialists. In Case 5, the lawyer won the case, the defendant appealed, the case file went missing, but was eventually recovered. At the next scheduled date, the court was not sitting. At the next hearing, the lawyer was told that the wrong date had been given to her. At the next hearing, the lawyer was told that the case had to be transferred to another High Court. After several back-and-forth between the two courts to effectively transfer the case, the court ruled again in the participant's favor. Figure D1 in the Appendix details all the steps involved in this case. 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 sitting, and inexplicable adjournments.

Fourth, the lawyer was critical in enforcing the decisions taken by courts. In Case 6, the judge ruled in favor of the treated individual 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.

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 E), 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 no 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 (Case J).

These ten cases were closed since they would all have involved appropriating land illegally or making false claims. 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.¹²

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 the poor.

C. Interventions on Legal Information

For all respondents stating that they were not involved in a legal conflict, we offered another intervention offering legal information on topics relevant to their circumstances. Qualitative work showed that many conflicts are caused by: 1) lack of official documentation proving ownership, 2)

¹²In one other case, both parties of the conflict were in the treated group. After the initial meeting with the client, the lawyer scheduled a mediation session with the other party only to discover that he was also a treated individual. Since this other party was randomized into treatment first, the lawyer advised the newer client that we could not assist him. That newer client was kept in the treatment group, but not offered any treatment. Our estimates are thus best viewed as intent-to-treat estimates.

lack of knowledge about the Kenyan law in the case of successions, 3) lack of knowledge about the proper steps to follow when buying or selling land, resulting in dishonest individuals appropriating land, and 4) absence of wills that would clarify ownership. We thus designed four interventions to address those issues.

PROCUREMENT OF A “SEARCH CERTIFICATE”

Many Kenyan smallholders have precarious relationships to their land. Rural farmers tend to rely on tradition rather than formal legal procedures in determining to whom land belongs. Obtaining documentation attesting to the ownership of land is hampered by bureaucratic procedures, fees, and a lack of knowledge on how to go about getting these documents. Firsthand experience on the part of paralegals suggests many landholders do not hold any formal proof of ownership. In some cases, farmers do not know the name under which their land is titled. This can be addressed by simply procuring a search certificate—essentially, a document purchased at the Lands Office, stating a plot of lands current owner—for the equivalent of 5 USD.

This service was offered to respondents who were not involved in a legal conflict but who expressed the need to receive a search certificate. The nature of the legal knowledge offered in this intervention is quite basic: the legal owner of the land the respondent is living on. The hypothesis is that clarifying property rights will increase effort.

TRAINING ON THE PROCESS OF SUCCESSION

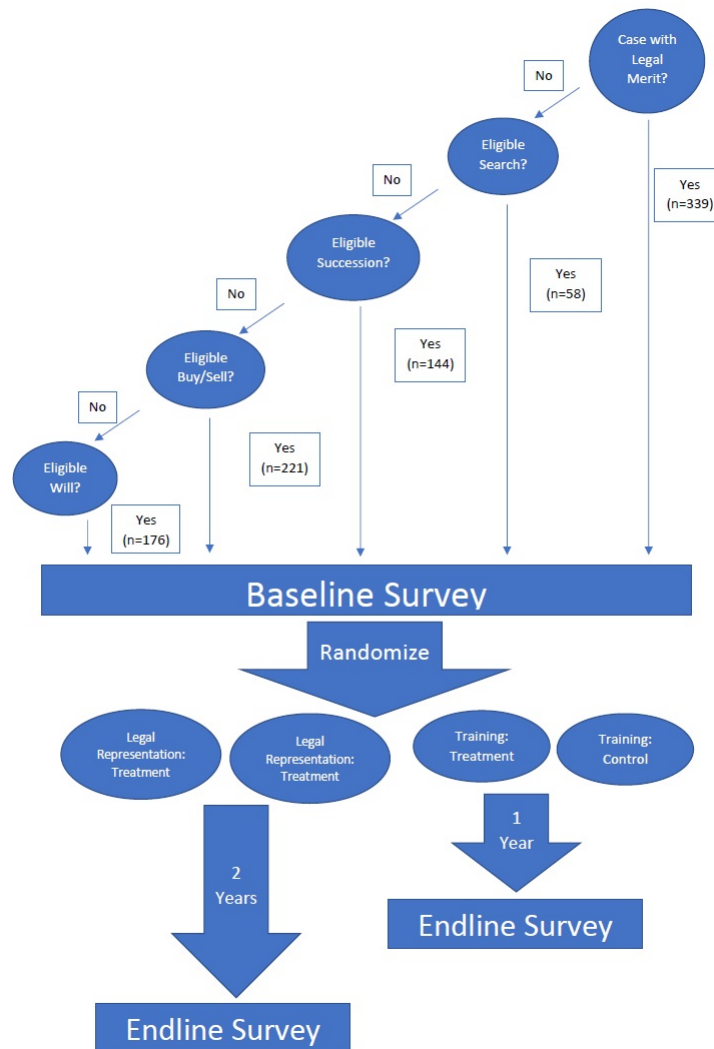
Numerous farmers have no official title deeds today because they have not followed the formal succession process on the death of their parents or grand-parents. The formal procedure of filing for succession requires an individual to apply in court to become the administrator of the deceased’s estate. The administrator must file the necessary paperwork¹³ for the estate to be distributed. This process must follow the spirit of the Law of Succession, which stipulates the order of dependents in which distribution is to occur. Succession according to customary law can best be described as patrilineal: when both parents die, all the sons are entitled to a share of the estate, albeit not necessarily equal amounts. For daughters however, only those who are unmarried are entitled to a portion of the estate. Kenyan law establishes a less discriminatory set of rules for the succession process. Many of these technicalities are unknown to Kenyans with low levels of education.

¹³A death certificate of the property owner; official identity cards of witnesses who are not beneficiaries; a list of the properties of the deceased and, in the case of land, the official search certificates, title deeds, allotment letters, and any other proofs of ownership; a list of dependents and copies of their identity cards; a chief’s letter confirming the deceased hailed from their region and was married to the surviving spouse (if this is not possible an affidavit will suffice) and; a marriage certificate for the surviving spouse.

A training session on the process of succession was offered to respondents who: 1- were not involved in a legal conflict *and*; 2- did not need a search certificate *but*; 3- were going through the process of succession for a close relative (see Figure 1 for the complete procedure to recruit participants). This 90-minute presentation highlighted crucial elements of estate succession under Kenyan law. A booklet summarizing the main points was left with respondents.

The intuition for this intervention is that providing this information will inform people about the process to follow in case of succession, thereby increasing confidence in property rights, and increasing effort and investment in the short-run since farmers are more secure in the knowledge that the fruits of their investment will accrue to them.

FIGURE 1. RECRUITMENT OF PARTICIPANTS



BUYING AND SELLING LAND

The formal process of buying and selling land involves many steps.¹⁴ It is therefore common to encounter disputes over land acquired through a process where some steps were skipped over. Boundary disputes between neighbors arise when a parcel of land was not properly surveyed during the transfer, for instance.

A presentation on the process of buying and selling property was offered to respondents who 1- were not involved in a legal conflict *and*; 2- did not need a search certificate *and*; 3- were not going through the process of succession for a close relative *but*; 4- were not currently involved in the buying or selling of land. Paralegals explained in detail the main stages involved in successfully completing the buying and selling of land. These sessions lasted around 60 minutes. Respondents were left with an information booklet summarizing the main points of the presentation.

This intervention may increase the security of property rights for the buyer since buyers are more secure in the knowledge that they will be the rightful owners of the plot. It may also positively affect the sellers since numerous conflicts are caused by dishonest buyers using their superior knowledge of the system to obtain consent from the sellers to register the land in their name, while not compensating sellers.

TRAINING ON WRITING WILLS

In traditional societies, few families proceed with a formal, legally-recognized succession process. When people die, they likely have not formally expressed their wishes for the estates distribution. This unsurprisingly leads to disputes among family members concerning who was promised what exact parcel of land. Such a situation does not bode well for strong property rights. A better grasp of the requirements for writing a legally-binding written will could prevent many such disputes.

A 30-minute session describing the process of writing a legally binding will was offered to randomized respondents who: 1- were not involved in a legal conflict *and*; 2- did not need a search certificate *and*; 3- were not going through the process of succession for a close relative *and*; 4- were not currently involved in the buying or selling of land *but*; 5- had not yet written a will. Paralegals explained the benefits of having a will, along with more technical details on the actual process. Respondents were left with an information booklet summarizing the main points of the presentation, as well as a blank copy of an official will.

¹⁴These are: 1-Procuring a search certificate for the land in question; 2-Purchasing a land map of the property; 3-Having a surveyor visit the land to ensure the map was drawn to scale; 4-Drafting a formal sale agreement; 5-Visiting the Land Control Board to get consent from community leaders; 6-Payment between buyer and seller; 7-Having the seller sign relevant Land Transfer Forms; 8-Buyer pays stamp duty and transfer fees and; 9-Obtaining another search certificate a week after the transfer to the ensure the buyer is now the legal owner.

The hypothesis is that writing wills will clarify property rights and increase the incentives to invest.

GROUP TRAINING

Chemin (2017) found that information interventions were largely ineffective when implemented at an individual level, but more successful at the level of groups of individuals. The reason is that peers in groups share their own experience about the issue and convince others to change behavior. In practice, we followed a similar procedure as in Chemin (2016). In a different location than the other interventions, we randomly selected 175 households not involved in a legal conflict to receive a presentation within their most important informal group. In Kenya, the majority of individuals is involved in informal groups, such as rotating savings and credit schemes (ROSCAs), church groups, or self-help groups. For each treated individual, we obtained consent from them and their group leaders to organize a presentation. The size of these groups (on average 30 individuals, some groups can reach 75 individuals) meant that there was an interest for the three trainings, i.e., the process of succession, buying and selling land, and writing wills. The paralegals thus presented to the whole group a combined training on these three topics. The training lasted usually three hours, and the paralegals allowed for questions asked by group members. These questions helped clarify further the material.¹⁵

IV. Data

The intake procedure (explained in Figure 1) led to a total sample of 1,113 households. Baseline data was collected by the paralegals on their first visit to the household. 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\$ a day per capita.¹⁶ 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.

Column (1) shows the characteristics of the treatment group of the main intervention on legal representation, while Column (2) shows the characteristics of the control group.¹⁷ For each participant, the paralegals collected a baseline survey before the randomization took place. Two years later, they collected an endline survey on the same participants. The treatment and control

¹⁵Unfortunately, the group leaders of the control group did not allow us to collect data among their group members. In the empirical section, we use the control group of the succession experiment as a control group for the group trainings.

¹⁶All values are in USD PPP.

¹⁷We slightly over-sampled the treatment group since the lawyers were able to take on more cases than initially planned. In practice, new cases were coming in continuously as paralegals found them. When the lawyers told us they 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

	Legal Representation			Legal Information		
	(1)	(2)	(3)	(4)	(5)	(6)
	Treatment (N=192)	Control (N=150)	Difference (p-value)	Treatment (N=374)	Control (N=245)	Difference (p-value)
Age	56.60	56.40	0.20 (0.90)	49.53	47.26	2.28** (0.05)
Male	0.64	0.71	-0.07 (0.13)	0.79	0.83	-0.05 (0.15)
Education	7.03	7.35	-0.32 (0.49)	8.52	8.82	-0.30 (0.29)
High school?	0.34	0.37	0.03 (0.66)	0.44	0.44	0.00 (0.92)
Ag. prod. per day per cap (USD PPP)	2.07	2.13	-0.06 (0.86)	3.08	3.00	0.08 (0.88)
Fertilizer use, past month (USD PPP)	56.24	68.38	-12.13 (0.30)	53.68	46.47	7.01 (0.28)
Days Worked on Farm (HH Members and Hired)	25.06	30.35	-5.29 (0.11)	30.08	33.94	-3.86 (0.49)
Land divided into formal titles	0.80	0.81	-0.01 (0.82)	0.77	0.72	0.05 (0.20)
Conflict Will Increase Land Next Year?	3.30	2.79	0.51 (0.23)	2.07	1.19	-0.88 (0.00)
Use Title Deed to Stop Land Grabbing?	0.04	0.08	-0.04* (0.08)	0.05	0.05	0 (0.98)
Last year, borrow from credit union?	0.09	0.14	-0.05 (0.13)	0.07	0.07	0 (0.99)
Last year, borrow from microfinance institution?	0.06	0.07	-0.01 (0.71)	0.04	0.04	0 (0.83)
Last year, borrow from bank / govt agency?	0.03	0	0.03** (0.03)	0	0.02	-0.02* (0.06)
Last year, borrow from employer / landlord?	0.03	0.02	0.01 (0.41)	0.01	0.01	0.00 (0.75)

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. Figures compiled from baseline data. The variable Education measures the respondent's years of schooling. "High School?" 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. "Days Worked on Farm" measures the total number of days worked on the respondent's farm in the past month by all household members, friends, family, and hired labor. "Land divided into formal titles" 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. "Conflict Will Increase Land Next Year?" asks respondents whether their land will holdings increase or decrease due to conflict in the next year. "Use Title Deed to Stop Land Grabbing?" is a binary variable equal to 1 if the respondent reported using their title deed to prevent land grabbing. The last four borrowing variables each take values of 1 if the respondent took out a loan from the stated financial institution in the past 12 months.

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. The treatment group produces slightly less agricultural output, uses less fertilizer, and works less on the farm than the control group at baseline. Concerning land titles, 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 expects some form of land increase in the next year due to a conflict, but uses land titles less than the control group to protect their plot from land grabbing. None of these differences are statistically significant.

Concerning access to credit, 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 statistically significant, but some may be economically significant. For example, the treatment group produces 23 percent less output per capita. Access to credit is 21 percent (9 from credit unions, 6 from microfinance, 3 from banks, 3 from employer / landlord) in the treatment group and (14+7+2=) 23 percent in the control group, a 9 percent difference. To the extent that wealth and access to credit are likely positively correlated with investment, these imbalances should go against finding an effect. Our results are thus an underestimate of the true effects of access to the legal system. We control for these characteristics in the subsequent analysis below.

The endline survey was collected after two years for the legal representation intervention since the average time to resolve a case is 2 years according to the Doing Business survey for Kenya.¹⁸ An independent team of fieldworkers collected this endline data to avoid social desirability effects.

Column (4) shows the characteristics of all individuals treated by any legal information intervention (search certificate, succession, buying and selling, wills, group training) in comparison to the characteristics of the control group in Column (5) (see Table F1 for the comparison disaggregated by intervention). Overall, the treatment and control groups are similar. The treatment group is slightly older and went more to high school. These differences will be controlled for in the subsequent analysis below.

¹⁸<http://www.doingbusiness.org/data/exploreeconomies/kenya#enforcing-contracts>

V. Empirical Methodology

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

$$\begin{aligned} \Delta y_{it} = & \beta_0 + \beta_2 \text{LegalRepresentation}_i \\ & + \beta_3 \text{Sample_LegalInformation}_i + \beta_4 \text{LegalInformation}_i \\ & + X_{it} + \varepsilon_{it} \end{aligned} \tag{1}$$

where i is for household i at time t , and Δy_{it} represents the change between baseline and endline in the particular outcome considered (effort, investment, credit, output).¹⁹ The main intervention is whether the individual received legal representation: $\text{LegalRepresentation}_i$ is a dichotomous variable equal to 1 if the household is assigned to the treatment group receiving legal representation, 0 otherwise. The main hypothesis tested in this paper is that β_3 is positive, i.e., legal representation increases effort, investment, credit, and output.

For simplicity, we aggregate all the legal information interventions in a single variable (the appendix provides the results for each disaggregated intervention). $\text{Sample_LegalInformation}_i$ isolates all individuals involved in the legal information intervention (a dichotomous variable equal to 1 if the household does not have an ongoing conflict, but is part of the sample of participants in any legal information intervention); while $\text{LegalInformation}_i$ is a dichotomous variable equal to 1 if the household is assigned to the treatment group receiving any training. Thus, the coefficient of interest is β_4 ; the difference between the treatment group receiving any training and the control group eligible to receive a training but not receiving any training.

We also include a vector X_{it} of control variables (age, gender, education, number of plots of land) since individuals that vary along these dimensions may be on different time trends. The results are similar with or without these controls.

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

¹⁹We also report results with lagged outcomes instead of first difference in the appendix, since the pre-analysis plan did not specify exactly the specification that would be used. Results are similar.

elders.

We did not specify in the pre-analysis plan how to address the concern of multiple hypothesis testing. We follow the literature and use the Sharpened False Discovery Rate (FDR) adjusted q-values (Anderson, 2008). Intuitively, this method adjusts the p-values by dividing the significance level by the number of hypotheses tested in a family of outcomes, taking into account the rank of the variable according to its p-value within the family.

We also use 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. To implement this procedure, we restrict the sample to the legal representation intervention, obtain the observed t-stat for the outcome in question, permute the observations randomly between the treatment and control groups, obtain a t-test, repeat this 1,000 times, find the proportion of times a t-stat is above the observed t-stat, which is the Fisher p-value.

Finally, we use the Wild Cluster Bootstrap methodology described in Cameron, Gelbach and Miller (2008) to address the small number of clusters (6 locations). Using Monte Carlo simulations with 5 clusters and different error structures and cluster sizes, they show that cluster-robust standard errors reject the null at a rate of 8.2 percent to 18.3 percent. The intuition of the Wild Cluster Bootstrap methodology is to resample residuals at the level of a cluster, thereby preserving the clustering of the data. With 5 clusters, they show that this technique rejects the null at a rate of 1.9 percent to 5.3 percent, not significantly different from 5 percent. In our analysis, we use the 6-point weight distribution proposed by Webb (2014).

VI. Results

A. Hypothesis H1: Effects on Access to the Formal Legal System

In the control group of the legal representation intervention, 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 2.²⁰ The difference is statistically significant as indicated by the p-value of a t-test. It remains significant when using the

²⁰In theory, 100 percent of the treatment group should have met with a 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.

FDR q-values accounting for multiple hypothesis testing. Intuitively, for this family of 4 outcomes in Table 2, the best ranked p-value (i.e., any meetings with lawyer in Column (1)) is .00019, below 10 percent/4 outcomes*1 (first-rank)=0.025, hence still significant at 10 percent.²¹ The difference between treatment and control groups is also statistically significant when using the Fisher test or the Wild Cluster Bootstrap methodology adjusting for the low number of clusters as shown in Table 2.

TABLE 2—HYPOTHESIS 1 OUTCOMES – PRIMARY:

	(1)	(2)	(3)	(4)
	Any meetings with lawyer?	Meetings With Lawyer	Cased Filed in Court?	Case Won, Lost, or Settled?
Treatment	0.71***	4.14**	-0.07	-0.01
(s.e)	(0.07)	(1.42)	(0.08)	(0.02)
[FDR]	[0.00]***	[0.06]*	[0.46]	[0.48]
[Fisher P-val]	[0.00]***	[0.05]*	[0.53]	[0.70]
[WCB]	[0.01]***	[0.01]**	[0.80]	[0.74]

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample only includes participants in the Legal Representation intervention since we only asked questions about meetings with a lawyer, cases filed in court and cases won or lost to this group, not to the Legal Information group (N=290). Outcome (1) is a binary variable taking a value of 1 if the respondent had at least one meeting with a lawyer for their dispute, 0 otherwise. Outcome (2) captures the number of meetings between the respondent and a lawyer at endline. Outcome (3) is a binary variable taking a value of 1 if the respondent's dispute was filed in court, 0 otherwise. Outcome (4) is a binary variable taking a value of 1 if the respondent's dispute was won or lost in court or settled with other party out-of-court, 0 otherwise. All regressions control for respondent's age, years of schooling, gender, and the number of plots on their farm. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

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.

Column (3) shows that there is no effect on case filed in court. Lawyers did not systematically file a case in court, but tried to mediate (and were sometimes successful as shown in cases 1 and 2). Moreover, in the control group, numerous respondents had filed a case before, but ran out of funds to continue with the case. Thus, no difference is detected between the treatment and control

²¹The second best ranked p-value (i.e., number of meetings with lawyer in Column (2)) is .035, below 10 percent/4 outcomes*2 (second-rank)=0.05, hence still significant at 10 percent. The last two outcomes have high p-values, and are not significant with these FDR q-values.

group in terms of a case ever filed in court.

Resolving land disputes is a slow process in Kenya, and after two years of the intervention, very few cases were fully resolved in the context of this intervention: 11 cases were won in court, 18 were settled out of court and 12 were lost. There is no detectable effect on resolving a case in Column (4). Still, lawyers may reassure participants about their property rights even though the case has not been fully resolved. Participants were satisfied with the legal representation given, as shown in Panel (a) of Figure 2. 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.

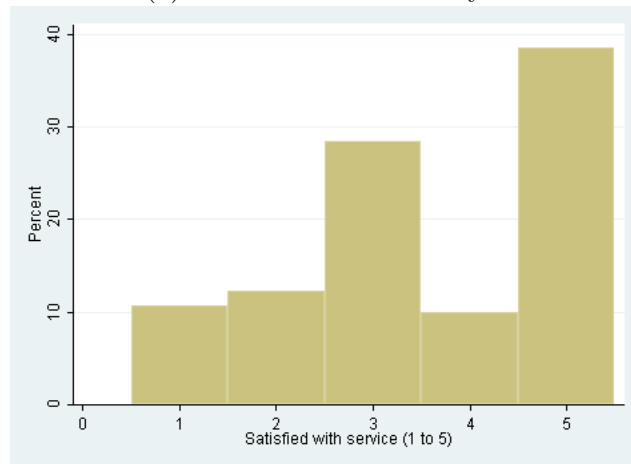
The pre-analysis plan also specified secondary hypotheses within H1. We had pre-specified a primary set of indicators most likely to be impacted by the project, and a more speculative secondary set that tie less directly to program objectives to be tested separately. The sample includes the participants of both the Legal Representation and Information group; yet we only report the coefficients of the Legal Representation group.

First, the “Secondary 1” hypothesis looks at perception of the legal system. Overall, we find no evidence that getting a lawyer improves perception of the legal system. The treatment group does not report having more confidence in the legal system (Column (5)), or does not think that the legal system is more fair (Column (6)), affordable (Column (7)), honest (Column (8)), consistent (Column (9)), quick (Column (10)), or more capable to enforce decisions (Column (11)). This is understandable since getting a lawyer does not affect the inner workings of the judiciary.

In fact, the treatment group does not report that access to the courts has improved (Column (12)), thus they are aware that the free lawyer is only part of this experiment. We next ask about a hypothetical case: “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.” The treatment group does not report a change in the number of days it would take to resolve a case, indicating that people have a good idea how long it takes to resolve cases (Column (13)). Interestingly, the treatment group indicates that they would hire a lawyer more than the control group for this hypothetical case (Column (14)) showing that people appreciated the lawyer, yet, this result does not survive the adjustment of p-values for multiple hypothesis testing. The treatment group does not report that legal fees would decrease for this hypothetical case (Column (15)), in other words, people are aware that they will not get a free lawyer in the future. Concerning bribery, people do not report that they will need to bribe if they have a lawyer (Column (16)), but that they will need to if they do not have a lawyer (Column (17)). This indicates that people believe a

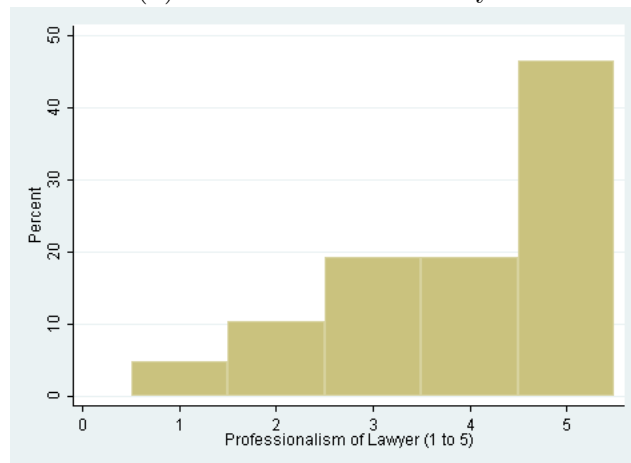
FIGURE 2. SATISFACTION WITH LAWYER

(a) Satisfaction with Lawyer



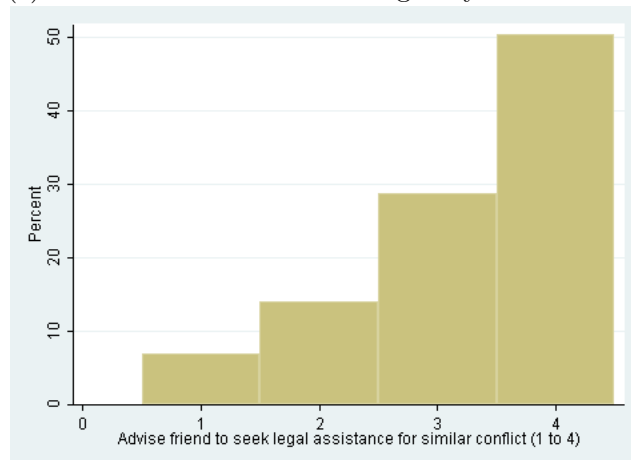
“How satisfied were you with the legal aid you were provided?” (1=extremely unsatisfied, 5=very satisfied)

(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—HYPOTHESIS 1 OUTCOMES – SECONDARY 1:

	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Upholds Contracts	Fair	Affordable	Legal System Honest	Consistent	Quick	Enforces Decisions	Access to Courts has Increased?
Treatment	0.18	-0.16	0.15	-0.31	0.02	0.17	0.67	-0.02
(s.e)	(0.21)	(0.15)	(0.23)	(0.20)	(0.16)	(0.27)	(0.05)	(0.22)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.36]	[0.41]	[0.55]	[0.30]	[0.96]	[0.53]	[0.36]	[0.92]
[WCB]	[0.52]	[0.34]	[0.51]	[0.12]	[0.95]	[0.62]	[0.30]	[0.94]
	(13)	(14)	(15)	(16)	(17)	(18)		
	Days to Handle	Hire Lawyer?	Hypothetical Lawyer Fees	Legal Case Pay Bribe?	Bribe Without Lawyer?	Cost?		
Treatment	897.23	0.52**	-417.77	0.03	-0.31**	-615.16		
(s.e)	(699.76)	(0.20)	(608.88)	(0.14)	(0.11)	(2,436)		
[FDR]	[1.00]	[0.60]	[1.00]	[1.00]	[1.00]	[1.00]		
[Fisher P-val]	[0.58]	[0.07]*	[0.52]	[0.74]	[0.11]	[0.29]		
[WCB]	[0.25]	[0.04]**	[0.64]	[0.89]	[0.13]	[0.71]		

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). Outcomes (5) to (11) are based on the following question: "On a scale of 1 to 5, in resolving land conflicts, do you believe your country's court system to be..." where 1= never and 5=always. Outcome (12) is based on respondents completing the following sentence: "In the last three years, access to the courts has..." on 3-point scale where 1=decreased, 2=remained the same, and 3=increased. Outcomes (13) to (18) deal with a hypothetical land grabbing case. Outcomes (15) and (18) are measured PPP USD. Outcomes (14), (16), and (17), represent the respective likelihoods of hiring a lawyer, paying a bribe in court with a lawyer, paying a bribe without a lawyer on a 5-point scale where 1= never and 5=always. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

lawyer can save on bribery costs, however, this result does not survive the multiple hypothesis test. Finally, people do not report a decrease in costs for this hypothetical case (Column (18)). Overall, few effects are detected for a future hypothetical case, which is understandable since the treatment offered a free lawyer for the current case that people are engaged in, not for a future case.

The “Secondary 2” hypothesis looks at the use of formal means of conflict resolution in Table 4. The hypothesis was that this intervention giving a free lawyer would convince people to use more formal versus informal means to defend their rights. We asked the question “Have you done anything to protect your land from land grabbing and/or theft?”. Informal ways to protect land would be to plant trees, put up fence, hire a guard, get dogs, use security light at night, even using witchcraft. Formal ways would be to use the title deed. We define a dichotomous variable equal to 1 if the respondent answers a formal way (i.e., use the title deed), 0 an informal way (all the other ways mentioned above). As visible in Column (19), the intervention increases the likelihood to use formal versus informal ways to protect land. This result remain significant when controlling for multiple hypothesis testing, using Fisher p-values or Wild Cluster Bootstrap. As expected, the intervention is thus moving people towards formal institutions.

TABLE 4—HYPOTHESIS 1 OUTCOMES – SECONDARY 2:

	(19)	(20)
	Use Title Deed to Prevent Land Grabbing?	Hypothetical Case Formal Resolution?
Treatment	0.10**	0.09
(s.e)	(0.03)	(0.07)
[FDR]	[0.03]**	[0.19]
[Fisher P-val]	[0.07]*	[0.37]
[WCB]	[0.07]*	[0.37]

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent, (N=909). Outcomes (19) is a binary variable equal to 1 if the respondent reported using their title deed to prevent land grabbing since the baseline survey, 0 otherwise. Outcome (20) relates to a hypothetical scenario where the respondent’s farm is subject to land grabbing dispute. It takes a value of 1 if the respondent states they would use any formal means of dispute resolution (land tribunal, the police, courts, land registration office, a land surveyor, a lawyer), 0 otherwise. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

In Column (20), the outcome relates to the hypothetical scenario described above “Imagine that you have the title deed to your plot, and then your neighbor attempts to grab the land in your plot. What would you do to try to stop your neighbor from grabbing your land?”. We define a

dichotomous variable equal to 1 if the respondent answers a formal way (i.e., go to a land tribunal, the police, courts, land registration office, a land surveyor, a lawyer), equal to 0 if the respondent answers an informal way (talk to the land grabbing neighbor, call friends/family, hire a witch-doctor to curse your neighbor, talk to village elders or chief, hire a vigilante, try and incite mob justice/use violence, go to a district official, a member of Parliament). The effects of the intervention are lower than in Column (19) which is understandable since Column (19) relates more to the present with a free lawyer while Column (20) relates to a hypothetical future where no free lawyer will be offered.²²

The “Secondary 3” hypothesis looks at the need for “side payments” in Table 5. The hypothesis was that access to a lawyer will reduce the need for bribes since the lawyer may know how to avoid paying bribes due to their knowledge of the law. This hypothesis is not fully supported by the results of Table 5. The treatment group reports more bribes for government officials in Column (21), courts in Column (22), and the police in Column (23), although only this last coefficient is statistically significant. Thus, access to a lawyer is not enough to suppress all types of corruption. One positive effect of the intervention is that it reduces the perception that bribes can get the service being provided (Columns (25) and (26)). This may be because the lawyer in our experiment follows the law without resorting to bribery, thus showing that it is possible to make progress on a case without bribes.

Access to a lawyer does not modify perceptions about the appropriate responses of the government or the police to corruption cases in Columns (28) and (29), which can be expected since respondents are engaged in land cases with neighbors, not corruption cases with the government or police. The intervention does not modify perceptions whether bribery has helped (Column (30)) or harmed (Column (31)) the respondent.

Despite the slight increase in corruption observed in Columns (21) to (23), the treatment group does not report more problems with government officials in Column (32), or that corruption has increased concerning the government in Column (33) or the police in Column (34).

Overall, these results show somewhat a lack of effects of the intervention on corruption, which is understandable since access to a lawyer is unlikely to resolve all corruption issues.

The “Secondary 4” hypothesis tests whether the intervention increased legal knowledge. We asked several questions relating to the Legal Information intervention to test whether these training ses-

²²Five other questions were included in the pre-analysis plan. They asked what the respondent did to resolve a land grabbing conflict, or a succession conflict, or a housing/eviction conflict, or a theft conflict, or a physical attack encountered in the past 10 years. The number of observations for these questions is very low: 87 for land grabbing, 57 for succession, 11 for eviction, 6 for theft, and 1 for physical attack. There are not enough observations in the data to analyze these questions, therefore we exclude them from the analysis. We had specified in the pre-analysis plan that the analysis will be conducted only if there is sufficient variation in the data.

TABLE 5—HYPOTHESIS 1 OUTCOMES – SECONDARY 3:

	(21)	(22)	(23)	(24)	(25)	(26)	(27)
	Common to Bribe Gov't Officials?	Common to Bribe in courts?	Common to Bribe Police?	Common for Police to Demand Bribe?	When Bribe, Provide Service?	When Bribe, no Service Provided?	When no Service, Find Others?
Treatment	0.30**	0.13	0.26***	0.47*	-0.08	0.37**	-0.08
(s.e)	(0.11)	(0.17)	(0.03)	(0.22)	(0.13)	(0.12)	(0.10)
[FDR]	[0.18]	[1.00]	[0.06]*	[0.41]	[1.00]	[0.17]	[0.80]
[Fisher]	[0.05]*	[0.42]	[0.00]***	[0.16]	[0.65]	[0.05]*	[0.39]
[WCB]	[0.04]**	[0.37]	[0.07]*	[0.11]	[0.64]	[0.08]*	[0.36]
	(28)	(29)	(30)	(31)	(32)	(33)	(34)
Gov't Responds to Corruption?	Police Responds to Corruption?	Bribery Helpful?	Bribery Harmful?	More Problems with Gov't Officials?	Corruption in Gov't has Increased?	Corruption in Police has Increased?	
Treatment	0.00	-0.09	0.21	0.18	-0.03	-0.06	-0.10
(s.e)	(0.21)	(0.23)	(0.11)	(0.28)	(0.15)	(0.19)	(0.17)
[FDR]	[1.00]	[1.00]	[0.41]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher]	[0.93]	[0.65]	[0.17]	[0.58]	[0.91]	[0.77]	[0.67]
[WCB]	[0.92]	[0.74]	[0.28]	[0.53]	[0.91]	[0.77]	[0.55]

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). Outcomes (21) to (31) capture respondents' level of agreement (coded from 1 –completely disagree to 5 – completely agree) with a given statement : (21): "It is common for people to have to pay some irregular 'additional payment' to get government officials to issue title deeds, permits, and/or business licenses." (22): "It is common for people to have to pay some irregular 'additional payment' when dealing with the law courts." (23): "It is common for people to have to pay some irregular 'additional payment' to get the police to deal with a crime (e.g. a case of theft, land grabbing, etc)". (24): "It is common for the police to demand irregular 'additional payments' for no reason (i.e. even when no crime has been committed)". (25): "If a person pays the required 'additional payment' the service is delivered as agreed (e.g. government officials issue the title deed/permit/license, police deal with the crime)." (26): "If a person pays the required 'additional payment' the service is not usually delivered as agreed. Instead, the public official seeks further 'additional payments'." (27): "If a government official acts against the rules I can usually go to another official or to his superior and get the correct treatment without recourse to unofficial 'additional payments'". (28): "The government responds appropriately when it discovers a government official to be engaged in corruption." (29): "The Head of Police responds appropriately when he/she discovers a policeman to be engaged in corruption." (30): "Bribery has helped me in the past." (31): "Bribery has harmed me in the past." . Outcomes (32) to (34) are binary outcomes taking a value of 1is respondents reported an increase in the following behaviors in the past three years, 0 otherwise. (32): difficulties in dealing with government officials.(33): corruption in government. (34): corruption in the police. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

sions had an effect on legal knowledge.²³ We find no effect of the Legal Representation intervention on legal knowledge (Coefficient = 0.01, s.e. = 0.35) which is expected since this intervention was not designed to improve information but to provide legal representation to the respondent.

Overall, the results pertaining to hypothesis 1 confirm that the treatment group has more access to a lawyer (Column (1) of Table 2) and uses more formal means to resolve conflicts (Column 19 of Table 4).

We investigate in the next section whether a greater access to the formal legal system translated into more secure property rights.

B. Hypothesis H2: Effects on Security of Property Rights

We capture the security of property rights by asking questions about expectations of land increases or decreases in the future. The primary hypothesis was that access to a lawyer would reduce the expectation that the size of future land holdings will decrease due to conflict and/or land distribution. In fact, the results are even more positive than this: access to a lawyer increases the expectation that the size of future land holdings will increase due to conflict (Column (1) of Table 6).

Land increases are expected in the relatively short time frame of 1 year, not 5 years (Column (2)) or 10 years (Column (3)). The effect is not going through a decrease in the expectations that the land will decrease (Columns (4) to (6)) as was stated conservatively in the pre-analysis plan. The hypothesis was that access to a lawyer would at least block attempts to grab the land. The results are even more positive here: access to a lawyer increases the expectations that the land will increase.

Results are not significant when looking at government land redistribution program (Columns (7) to (12)) since most of the conflicts in this community are between community members, neighbors and within the family, not caused by any land redistribution program.

Within this Hypothesis 2, we had specified a secondary hypothesis using other ways to measure property rights. First, we follow Besley (1995) and attempt to measure the bundle of rights that people enjoy on their land. We find no effects of this intervention on the rights to sell, rent out, take loans on plot, cultivate, leave plot in will, and gift plot, with or without family approval (Columns

²³such as whether women are allowed to write wills, where can a Green Card be acquired, whether parent's will can exclude one of the parent's children, how many witnesses are required to sign a will, from what government institution one needs approval to be able to transfer agricultural land, if no will is left by a deceased landowner, are all children of the deceased entitled to an equal share of the remaining land, what is the name of the certificate that proves ownership of a land parcel, how long does a squatter have to be living on a plot he doesn't own to be able to claim adverse possession, who is the best person to help draft and sign a land sale agreement as a witness, can an individual sell land that they are holding in trust for someone else?

TABLE 6—HYPOTHESIS 2 OUTCOMES – PRIMARY:

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict Will						
	Increase Land Next			Decrease Land Next		
	Year?	5 Years?	10 Years?	Year?	5 Years?	10 Years?
Treatment	0.54***	0.10	-0.08	0.54	0.46	0.73
(s.e)	(0.12)	(0.41)	(0.23)	(0.34)	(0.50)	(0.65)
[FDR]	[0.05]*	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.02]**	[0.72]	[0.70]	[0.25]	[0.44]	[0.36]
[WCB]	[0.06]*	[0.76]	[0.64]	[0.09]*	[0.30]	[0.19]
Land Redistribution Will						
	Increase Land Next			Decrease Land Next		
	Year?	5 Years?	10 Years?	Year?	5 Years?	10 Years?
Treatment	-0.04	0.03	-0.23	0.60	0.44	0.42
(s.e)	(0.33)	(0.33)	(0.45)	(0.74)	(0.36)	(0.29)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.93]	[0.93]	[0.76]	[0.60]	[0.45]	[0.44]
[WCB]	[0.97]	[0.81]	[0.84]	[0.52]	[0.41]	[0.52]

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). Outcomes (1) to (12) measure respondents' level of agreement with statements concerning the future size of their land holdings on a 10-point scale where 1 means total disagreement and 10 total agreement. Outcomes (1) to (6) ask respondents whether their land will holdings increase or decrease due to conflict in the next one, five, and ten years. Outcomes (7) to (12) ask respondents whether their land holdings will increase or decrease due to land distribution in the next one, five, and ten years. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

(13) to (24)). Thus, this intervention is not significantly altering what people can do with their lands. This can be explained by the fact that few cases had been seen to conclusion by the end of the intervention, thus property rights are not affected at endline. No effect is found on other measures of property rights such as the number of title deeds in the homestead in Column (25), fencing purchased in Column (26), and feelings of safety outside or inside the homestead during the day or the night (Columns (27) to (30)).

Overall, respondents do not report immediate effects in terms of a greater bundle of property rights or improved safety, but expect that their land will increase in the next year, in line with the main intuition underlying this intervention: in the typical case of land grabbing by neighbor, access to a lawyer improves access to the formal legal system which translates into a expectation

that the land will be recovered at some point. The next section investigates whether this translates into greater investment on the land

C. Hypothesis H3: Effects on Investment

As shown in our theoretical model in appendix A, greater access to the formal legal system that secures property rights should translate into greater investment (Hypothesis H3 of our pre-analysis plan). In our pre-analysis plan, we pre-specified two ways to measure investments: long-term improvements to the plot and investment in working capital.

Table 8 shows no significant effect on steepness of the land in Column (1), trees in Column (2), cow pens in Column (3), trenches in Column (4), terraced acres in Column (5), granaries in Column (6), greenhouse in Column (7), buildings in Column (8), mulching in Column (9), acres watered in Column (10), pit planting in Column (11), rainwater storage in Column (12), non-rainwater storage in Column (13), boreholes in Column (14), the number of plants in buckets or sacks in Column (15), crop rotation in Column (16), cemented pathways in Column (17), piped water in Column (18), fish farm in Column (19), and fallowing in Column (20).

One reason for the lack of effects may be that these improvements to the plot are relatively long-term. As emphasized in this paper, few cases are resolved by the time of the endline and effects on investment in buildings, irrigation systems and change of production systems may take longer to materialize.

In Table 9, we test for shorter-run investments in terms of working capital. The main agricultural investment in this community is the use of fertilizer, which accounts for 46 percent of the value of all investments. Column (23) shows that the use of fertilizers increased by \$5 per month, an increase of 21 percent compared to the control group. Yet, this effect is not statistically significant once accounting for multiple hypothesis testing, the Fisher test or Wild Cluster Bootstrap. There is no effect on animal manure collected (Column (21)) or purchased (Column (22)), seeds (Column (24)), pesticides (Column (25)), mechanical inputs (Column (26)) or other non-labor inputs (Column (27)).

Overall, this section provides little evidence that the intervention increases improvements to the plot and investments in working capital. The next sections check for other types of investment in the future or in the land, i.e., access to credit for long-term productive investments and effort proxied by days worked on the land.

TABLE 7—HYPOTHESIS 2 OUTCOMES – SECONDARY:

	(13)	(14)	(15)	(16)	(17)	(18)
	Right to Sell Plot Without Family Approval?	Right to Sell Plot With Family Approval?	Right to Rent Out Plot Without Family Approval?	Right to Rent Out Plot With Family Approval?	Right to Take Loans on Plot Without Family Approval?	Right to Take Loans on Plot With Family Approval?
Treatment	-0.00	-0.02	0.01	0.02	0.03	-0.01
(s.e)	(0.05)	(0.05)	(0.04)	(0.06)	(0.04)	(0.04)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.88]	[0.63]	[0.17]	[0.58]	[0.59]	[0.77]
[WCB]	[0.79]	[0.78]	[0.76]	[0.52]	[0.87]	[0.63]
	(19)	(20)	(21)	(22)	(23)	(24)
	Right to Cultivate Plot Without Family Approval?	Right to Cultivate Plot With Family Approval?	Right to Leave Plot in Will Without Family Approval?	Right to Leave Plot in Will With Family Approval?	Right to Gift Plot Without Family Approval?	Right to Gift Plot With Family Approval?
Treatment	-0.19	-0.07	0.10	-0.01	0.01	-0.03
(s.e)	(0.10)	(0.10)	(0.07)	(0.13)	(0.05)	(0.04)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.27]	[0.53]	[0.38]	[1.00]	[0.79]	[0.97]
[WCB]	[0.14]	[0.69]	[0.33]	[0.92]	[0.91]	[0.83]
	(25)	(26)	(27)	(28)	(29)	(30)
	Homestead Divided Into How Many Formal Deeds?	Fencing Purchased (USD PPP)	How Safe you Feel Outside at Night (1-10)	How Safe you Feel Inside at Night (1-10)	How Safe you Feel Outside Daytime (1-10)	How Safe you Feel Inside Daytime (1-10)
Treatment	-0.17	-0.17	-0.37*	0.10	-0.27	-0.04
(s.e)	(0.12)	(1.30)	(0.19)	(0.20)	(0.16)	(0.13)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.41]	[0.85]	[0.13]	[0.44]	[0.14]	[0.74]
[WCB]	[0.07]*	[0.89]	[0.17]	[0.35]	[0.13]	[0.74]

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). Outcomes (13) to (24) are binary variables concerning respondents' rights to their primary plot of land: whether they have the right to sell, cultivate, rent out, leave on a will, or take a loan out on it with or without family approval. Outcome (25) is binary variable equal to 1 if the respondent's homestead is divided into formal title deeds, 0 otherwise. Outcome (26) measures the total value (USD PPP) of fencing on the respondent's farm. Outcomes (27) to (30) measure respondents' level of self-reported safety in the day and at night both at home and outside on a 10-point scale where 1=not safe at all and 10=completely safe. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

TABLE 8—HYPOTHESIS 3 OUTCOMES - IMPROVEMENTS :

	(1)	(2)	(3)	(4)	(5)
	Steepness of Land	Trees	Cow Pens	Trenches	Terraced acres
	(1 to 3)	on Plot	on Plot	on Plot	on Plot
Treatment	-0.25	120.06	0.01	-0.24	-0.15
(s.e)	(0.22)	(65.83)	(0.13)	(0.41)	(0.16)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.36]	[0.26]	[0.83]	[0.57]	[0.54]
[WCB]	[0.21]	[0.40]	[0.82]	[0.70]	[0.51]
	(6)	(7)	(8)	(9)	(10)
	Granaries / storage	Sq. Meters of	Non-House	Acres of	Acres Watered
	rooms on Plot	Greenhouse on Plot	Buildings on Plot	Mulching on Plot	by Sprinkler on plot
Treatment	-0.06	-0.03	-0.16	-0.16	0.08
(s.e)	(0.06)	(0.04)	(0.28)	(0.16)	(0.05)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.25]	[0.50]	[0.72]	[0.36]	[0.03]**
[WCB]	[0.30]	[0.63]	[0.91]	[0.51]	[0.05]*
	(11)	(12)	(13)	(14)	(15)
	Sq. Meters of	Liters of Rainwater	Liters of non-Rainwater	Boreholes	Number of Plants
	Pit Planting on Plot	Storage on Plot	Storage on Plot	on Plot	in Buckets or Sacks
Treatment	-0.09	116.19	-174.45*	0.13	-0.13
(s.e)	(2.70)	(261.21)	(80.64)	(0.74)	(0.07)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.93]	[0.91]	[0.10]*	[0.78]	[0.13]
[WCB]	[0.96]	[0.85]	[0.18]	[0.75]	[0.12]
	(16)	(17)	(18)	(19)	(20)
	Acres on Plot with	Meters of Cemented	Acres of Piped	Sq. Meters of	Years of Fallowing
	Crop Rotation	Pathways on Plot	Water on Plot	Fish Farm on Plot	on plot
Treatment	-0.13	0.05	-0.06	-0.36	18.50
(s.e)	(0.08)	(0.03)	(0.06)	(0.30)	(17.13)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.22]	[0.48]	[0.39]	[0.22]	[0.43]
[WCB]	[0.42]	[0.27]	[0.71]	[0.09]*	[0.34]

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). All outcomes measure features of the respondent's primary plot of land. Outcome (1) measured the steepness of the plot of land, where 1=flat gently, 2=sloped, 3=very steep. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

TABLE 9—HYPOTHESIS 3 OUTCOMES - INVESTMENTS :

	(21)	(22)	(23)	(24)
	Animal Manure Collected (KG)	Animal Manure Purchased (USD PPP)	Chemical Fertilizer Purchased (USD PPP)	Seeds Purchased (USD PPP)
Treatment	-626.27	-5.19	-5.19	-7.38
(s.e)	(465.93)	(4.22)	(4.22)	(7.34)
[FDR]	[0.80]	[0.80]	[0.38]	[0.80]
[Fisher P-val]	[0.43]	[0.28]	[0.34]	[0.72]
[WCB]	[0.33]	[0.41]	[0.62]	[0.80]
	(25)	(26)	(27)	
	Pesticides Purchased (USD PPP)	Mechanical Inputs Purchased (USD PPP)	Other non-Labor Inputs Purchased (USD PPP)	
Treatment	-6.50	-7.71	-1.05	
(s.e)	(16.30)	(11.64)	(0.86)	
[FDR]	[1.00]	[1.00]	[0.96]	
[Fisher P-val]	[0.72]	[0.64]	[0.23]	
[WCB]	[0.08]	[0.87]	[0.52]	

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent, (N=909). Outcomes (21) to (27) represent improvements made on the respondent's farm in the 3 months prior to the day of the survey. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

D. Hypothesis H4: Effects on Access to Credit

Table 10 looks at access to credit from different sources in the last 12 months. The outcomes are dichotomous variables equal to 1 if the respondent obtained credit in the last 12 months from that particular source, 0 otherwise.

Column (1) shows a slight decrease for borrowing from employer/landlord, no effect for borrowing from microfinance institutions (Column (2)) and banks (Column (3)), and an increase for borrowing from credit unions (Column (4)). This increased access to credit from formal sources does not come at the expense of reduced borrowing from informal sources as visible from columns (5) to (9).

Credit unions are the most important source of formal finance in Kenya (called savings and credit cooperatives, SACCOs, in Kenya).²⁴ 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 2 percent from an employer or landlord, 7 percent from microfinance institutions, and 0 percent from a formal bank

²⁴Table 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).

TABLE 10—HYPOTHESIS 4 OUTCOMES - CREDIT IN PAST 12 MONTHS:

	(1)	(2)	(3)	(4)	
	Formal Sector				
	Employer / Landlord	Micro-finance	Bank	Credit Union	
Treatment	-0.04**	0.02	-0.04	0.11**	
(s.e)	(0.01)	(0.02)	(0.02)	(0.03)	
[FDR]	[0.08]*	[0.30]	[0.09]*	[0.09]*	
[Fisher P-val]	[0.04]**	[0.25]	[0.36]	[0.05]**	
[WCB]	[0.03]**	[0.29]	[0.34]	[0.04]**	
	(5)	(6)	(7)	(8)	(9)
	Informal Sector				
	Family (Same HH)	Family (Outside HH)	Friends (Same Village)	Friends (Different Village)	ROSCA
Treatment	-0.05	-0.05	-0.11	-0.04	-0.02
(s.e)	(0.04)	(0.06)	(0.07)	(0.02)	(0.04)
[FDR]	[0.24]	[0.47]	[0.24]	[0.24]	[0.47]
[Fisher P-val]	[0.11]	[0.51]	[0.53]	[0.43]	[0.39]
[WCB]	[0.28]	[0.17]	[0.17]	[0.53]	[0.27]

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). Outcomes (1) to (9) are binary variables taking a value of 1 if the respondent took out a loan in the past 12 months from various sources, 0 otherwise. ROSCAs are Rotating Savings and Credit Associations. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

or government agency (see Table 1). The treatment increased the proportion of people borrowing from credit unions by 11 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 emergencies.²⁵ Table 11 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.

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 12). Thus, increased security of property rights on the land increases the harvest (by decreasing the likelihood of expropriation, as

²⁵Tables 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 11—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.

shown in the next hypothesis H5), which is used as collateral to get loans and used for more general purposes than just agriculture (see Appendix C for a simple theoretical model of the effects of the legal system on credit).

TABLE 12—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.

E. Hypothesis H5: Effects on Production

Table 13 below looks at agricultural production. Column (1) aggregates all value of crops produced by the household (quantity multiplied by median price fetched on local markets within the survey). Column (1) shows that the intervention increased total monthly agricultural output by 269 USD PPP, or almost 2 USD PPP per day per capita, essentially a doubling of agricultural production. This effect is large but still less than the on-going costs of a lawyer for respondents,

equivalent to a yearly household income. Thus, this intervention is not cost-effective, at least when considering the on-going market prices of lawyers in Kenya. We explain in the cost-benefit analysis below how we were able to achieve lower costs by opening a community justice centre and paying an advocate full-time to service the whole treatment group in this intervention, thereby making this intervention cost-effective in this sense. Yet, on an individual basis, this intervention is not cost-effective which may explain the very low use of lawyers and the legal system in general in Kenya.

TABLE 13—HYPOTHESIS 5 OUTCOMES - AGRICULTURAL PRODUCTION:

	(1)	(2)	(3)	(4)	(5)
	Monthly Agricultural Output (USD PPP)	Days Worked on Farm:	Expect Food Shortage Next Year (1 to 10)	HH Formal Sector Work Last Month (Days)	HH Casual Work Last Month (Days)
Treatment	291.81***	4.70***	0.37	-0.58	0.31
(s.e)	(64.17)	(1.06)	(0.58)	(0.68)	(1.16)
[FDR]	[0.10]*	[0.00]***	[0.53]	[0.53]	[1.00]
[Fisher P-val]	[0.01]***	[0.01]***	[0.45]	[0.53]	[0.90]
[WCB]	[0.05]**	[0.05]**	[0.41]	[0.62]	[0.99]

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). Outcome (1) measures respondents' agricultural output (crops and livestock) for both home consumption and sale in the past month using sample median commodity prices. Outcome (2) measures the total number of days worked on the respondent's farm in the past month by all household members, friends, family, and hired labor. Outcome (3) measures the self-reporting likelihood of respondents facing a food shortage in the next year on a 10-point scale. Outcomes (4) to (5) measure the total number of days in the past month households members worked worked in formal and informal sectors, respectively. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

This effect on production is not simply driven by farmers not having land at baseline and acquiring land at endline. In our sample, most of the farmers work on their land at baseline and there is no increase in land size by the endline (p-value = 0.85 when we regress land size on the treatments).

In our pre-analysis, we had pre-specified to also look at days of work on the plot. This can be viewed as a proxy for effort in our theoretical model. In Column (2), we add together the total days per month worked on the respondent's main plot of land by all individuals.²⁶ Column (2) of Table 13 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 4.6 days in the treatment group after the

²⁶This 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.

intervention, a 15 percent increase.

This increase in days worked is not simply driven by the household head having to spend less time in court thanks to the lawyer, and more time farming. Table J1 in Appendix J shows no significant effect on days worked by the household head. The increase in days worked is also not caused by a crowding out of hired labor; if anything, hired labor increases as can be seen in Table J1.

Is the effect on days worked plausible? In Appendix B, 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 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 greater 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 B1 of Appendix C). The model predicts that access to the judiciary would increase effort by 12 percent, in line with the empirical estimates.

Rather than aggregating all crop quantities consumed, Column (3) asks whether the household expects a food shortage in the next year. No effect is found, although this may be due to the fact that this particular region is quite fertile and there is low expectation of food shortage in this community (The baseline average in the control group is 3.33 out of 10).

Finally, Columns (4) and (5) look at diversification into formal sector work or casual work. We find no evidence that these extra days of work on the land come at the expense of other types of economic activity.

F. Hypothesis H6: Effects on Well-Being and Trust

One possible downside of access to the formal legal system may be increased stress and worries. We use the Perceived Stress Scale (PSS10) to measure stress (as described in Appendix K). Worries were measured by aggregating across 15 individual worries. Depression was measured on a 90-point scale, based on 17 questions from the World Health Organization’s ICD-10 Diagnostic Manual (as described in Appendix K.K3).

We find no such increase in stress (Column (1)), depression (Column (2)), or worries (Column (3)). One explanation is that accessing the courts may be worrying, but not more worrying than not being able to access the courts and defend one’s rights.

TABLE 14—HYPOTHESIS 6 OUTCOMES - PERCEPTIONS:

	(1)	(2)	(3)	(4)	(5)
	Stress	Depression	Worries	Trust	People Will Take
	(Out of 50)	(Out of 78)	(Out of 60)	(Out of 60)	Advantage of You (1 to 5)
Treatment	0.02	2.60	0.20	-0.97*	0.20
(s.e)	(1.06)	(3.24)	(0.98)	(0.44)	(0.20)
[FDR]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
[Fisher P-val]	[0.98]	[0.55]	[0.4]	[0.17]	[0.61]
[WCB]	[0.94]	[0.45]	[0.82]	[0.17]	[0.77]

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent, (N=909). Outcomes (1) to (4) are indexes based on a set of questions covering stress, depression, worries, and trust respectively. Higher scores represent higher self-reported levels of stress, depression, worries, and trust. Outcome (5) is based on respondents' answers to the following statement: "Do you think that most people would try to take advantage of you if they got a chance, or they would try to be fair?" Answers are coded as follows: 1 – Always try to take advantage, never be fair 2 – Frequently try to take advantage, rarely be fair 3 – Sometimes try to take advantage, sometimes be fair 4 – Rarely try to take advantage, frequently be fair 5 – Never try to take advantage, always be fair. [FDR] are the Sharpened False Discovery Rate adjusted q-values for this family of outcomes. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

Another hypothesis is that access to the formal legal system increases trust in others, thereby favoring impersonal exchanges. We find no evidence that access to a lawyer increases trust or affects the perception that others will take advantage of oneself. Once again, this may be due to the fact that few cases have been resolved yet, effects on trust may take more time to appear.

G. Summary of Results

We summarize in Table 15 below the results that remain significant when adjusting for multiple hypothesis testing, or using the Fisher test and the Wild Cluster Bootstrap correction. This paper finds that access to a lawyer increases the use of the formal legal system (Column (1)) and the security of property rights, evidenced by the increase in expectations that land will increase in the next year (Column (2)). This in turn increases effort on land (Column (5)) and agricultural production (Column (4)). An increased harvest can be used as a collateral at the credit union to access credit for long-run productive investments (Column (3)) which further increases agricultural production. These results are similar with or without control variables (see Table L1).

H. Effects of Legal Information Interventions

In contrast to the effects of the legal representation intervention, we find very limited effects of the legal information interventions; if anything a negative effect on access to credit (as evidenced

TABLE 15—SUMMARY:

	(1)	(2)	(3)	(4)	(5)
	Use Title Deed to Stop Land Grabbing?	Conflict Will Increase Land Next Year?	Past Year, Credit Union Loan	Monthly Agricultural Output (USD PPP)	Days Worked on Farm: HH Members and Hired
Treatment	0.10**	0.54***	0.11**	291.81***	4.70***
(s.e)	(0.03)	(0.12)	(0.03)	(64.17)	(1.06)
[FDR]	[0.03]**	[0.05]*	[0.09]*	[0.10]*	[0.00]***
[Fisher P-val]	[0.07]*	[0.02]**	[0.05]**	[0.01]***	[0.01]***
[WCB]	[0.07]*	[0.06]*	[0.04]**	[0.05]**	[0.05]**
Treatment (Legal Info)	-0.03**	0.29	-0.05**	-6.032	-2.14
(s.e)	(0.01)	(0.25)	(0.01)	(8,376)	(12.44)
Mean Control Baseline	0.08	2.79	0.14	262.50	30.35
(sd)	(0.27)	(3.71)	(0.35)	(6476.93)	(35.14)

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). This tables summarizes our main findings. Outcome (1) corresponds to Outcome (19) in Table 4. Outcome (2) corresponds to Outcome (1) in Table 6. Outcome (3) corresponds to Outcome (4) in Table 10. Outcomes (4) and (5) correspond respectively to to Outcomes (1) and (2) in Table 13. [FDR] are the Sharpened False Discovery Rate adjusted q-values from the family of the specific outcome. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

in Table 15).

Table G1 in the appendix disaggregates the results by the type of training and finds mostly insignificant effects of these trainings, at least compared to the magnitude of the legal representation intervention. This is to be expected considering the differing intensity of the two treatments. On the one hand, the legal representation intervention saw a team of 4 lawyers and 10 paralegals organize 1,078 meetings in total with participants to resolve their disputes. The lawyers organized mediation sessions, used their knowledge of the law to resolve disputes, helped navigate the numerous and complex steps of the judiciary (see Figure D1 for a particular case), and helped enforce the decisions taken by courts. On the other hand, the legal information interventions consisted in 30 minutes to 3 hours training sessions on various topics of the law. The results thus show that providing legal information cannot serve as a substitute for the assistance of a lawyer for 2 years.

I. Other Outcomes not Specified in the Pre-Analysis Plan

We add another variable not part of the pre-analysis plan: physical violence. This is because Blattman, Hartman and Blair (2014) finds an increase in physical fights with other, extrajudicial violence, witch hunt or trial by ordeal after an intervention training some community members on Alternative Dispute Resolution (ADR) mechanisms. The authors explain this finding by “a rise in

youth-elder tensions that seemed to stem directly from a controversial theme in the workshops—that young adults and elders deserve equal treatment under the law” (p.113). In our context, it is possible that individuals with traditionally less power (such as Sarah in our running example) got empowered through access to a lawyer to attempt to resolve disputes that would otherwise have been won by more powerful individuals. These individuals may have retorted extrajudicially against the plaintiffs.

On a qualitative level, the lawyers did not experience any such case of physical violence during the intervention. In fact, the lawyers helped resolve some cases with physical violence.²⁷ 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 16 reports a slight decrease in the likelihood of physical attacks for our treatment group.

TABLE 16—OTHER OUTCOMES

	(1) Physical attack past year?
Treatment - Legal Representation	-0.01 (0.01)
Treatment - Legal Information	0.00 (0.00)
Mean control baseline (SD)	0.02 (0.15)

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). 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 K.K1 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 K.K1 for a detailed description of the calculation.

²⁷For 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.

VII. Discussion

A. Magnitude of the Effects

Agricultural production increased by \$291 USD per household per month. Our total costs (lawyer salary, office rent, average court fees, lawyer transit, paralegal salaries)²⁸ 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.

Notice that the benefits of the intervention (\$291) are less than ongoing legal fees on the market. When we asked about perception of lawyer fees in a hypothetical scenario, people estimated total legal fees to be 299\$ per month. This indicates that getting a lawyer is not a cost-beneficial proposition, and may explain the low access to courts in Kenya. These results also emphasize the importance of our “community justice center”, whereby one lawyer simultaneously serves multiple households to achieve scale.

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 (3) of Table 2) since the control group also had filed cases in the past. Yet, the lawyer in this intervention 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 results, and do not take this possibility into account.

Two observations can be made. First, it is not always true that free access to a lawyer will increase cases filed. If the judiciary is of high quality, 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

²⁸See Table I1 in Appendix I.

the number of cases filed.

Second, we show in our model in Appendix H 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.²⁹ 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 (2018) 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

How generalizable are our results to other contexts? Our project was implemented in a community that is representative of the rural Central Province of Kenya, an area comprising more than 3 million people (see Chemin, 2017). 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).

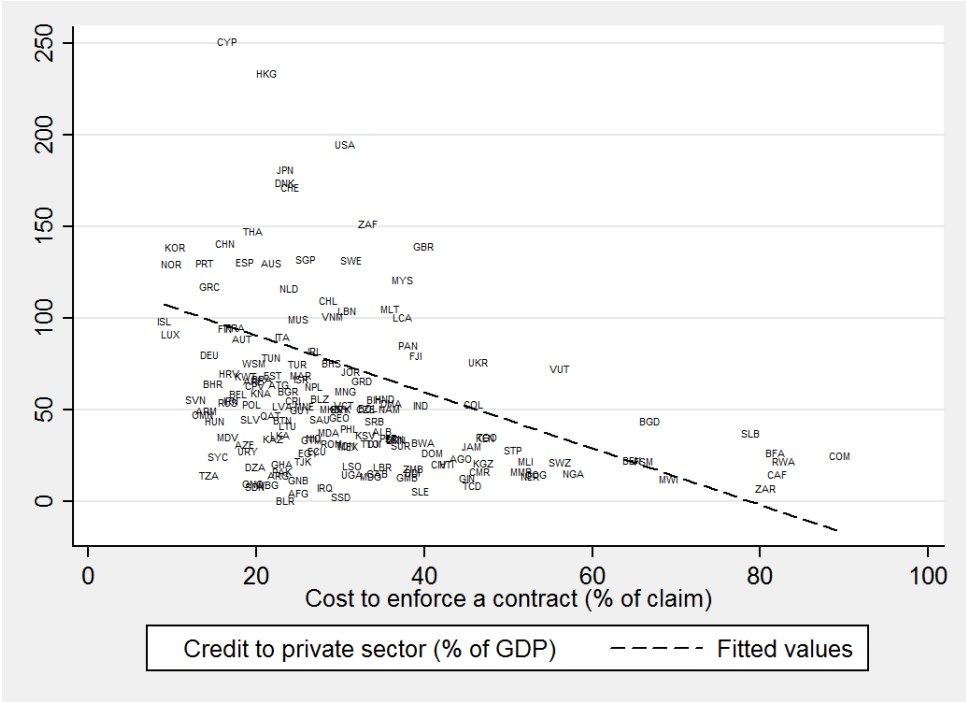
A difference between Kenya and the rest of Sub-Saharan Africa is the unique land titling history of Kenya. Starting with the Swynnerton Plan of 1954, Kenya undertook what has turned out to be the most ambitious program of systematic land demarcation and titling in Africa to date (Migot-Adholla, Place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

²⁹The 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).

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 3 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 $-0.64 \times 27.5 = 18$ 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 3. 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

Attrition was kept low, 5 percent of the sample refused to answer the endline. Other respondents died, or were impossible to locate, making our final sample size 909 out of 1,113 in the baseline. Attrition is uncorrelated with the treatment status, or the interaction of treatment and outcomes (use of title deed in Column (1), expectations of increase in land in Column (2), access to credit in Column (3), agricultural output in Column (4), days worked on farm in Column (5)). An attrition dummy is regressed in a probit regression on treatment status, these outcomes and the interaction of treatment and these outcomes at baseline in Table 17 on the entire baseline sample of 1,113 households.

Attrition is also uncorrelated with age in Column (6), education in Column (7), number of plots in Column (8) and gender in Column (9)), and the interaction of treatment and these variables.

Nonetheless, we present in Appendix M1 an inverse probability weighting regression correcting for attrition, and results are similar.

VIII. Conclusion

In this paper, we show that access to legal representation 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 access to the legal system 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

TABLE 17—REGRESSION OF ATTRITION INDICATOR ON TREATMENT STATUS, COVARIATES, AND OUTCOMES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Title Deed	Conflict Increase Land	Credit Union Loan	Agricultural Output	Days Worked on Farm	Age	Education	Plots	Male
Outcomes (1)-(9)	-0.02	0.00	-0.02	0.00	0.00	0.00	0.00	0.01	0.02
(s.e)	(0.06)	(0.01)	(0.05)	(0.00)	0.00	(0.00)	(0.00)	(0.03)	(0.03)
Treatment	-0.05	-0.04	-0.06	-0.05	-0.05	-0.04	-0.03	0.04	-0.05
(s.e)	(0.03)	(0.04)	(0.03)	(0.04)	(0.04)	(0.12)	(0.06)	(0.09)	(0.05)
Treatment*Outcomes (1)-(9)	-0.02	0.00	0.13	0.00	0.00	0.00	0.00	-0.08	0.00
(s.e)	(0.06)	(0.01)	(0.11)	(0.00)	(0.00)	(0.00)	(0.01)	(0.08)	(0.07)

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. Dependent variable is an attrition indicator. Variables (1) to (5) are recorded at baseline and correspond to those from Table 15. Variables (6) to (9) were taken at baseline had correspond to the control variables use in this paper's econometric specification.

offering the services of a lawyer free of charge for 2 years, increased effort, access to credit, and agricultural production.

These effects are statistically and economically significant: the benefits of the intervention are found to outweigh the costs. At this stage, it is premature 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.

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APPENDIX

APPENDIX A: EFFECTS OF ACCESS TO THE LEGAL SYSTEM ON INVESTMENT

A1. *The commitment problem*

To understand the likely effects of access to the legal system on economic activity, we follow Besley and Ghatak (2009). Our contribution is to explicitly model the role of the legal system within this framework. An investor (a farmer or an entrepreneur) exerts effort $e \in [0, 1]$, of which he has an endowment \bar{e} .³⁰ 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:

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

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, resulting in no output to expropriate.

This outcome is inefficient, since any level of expropriation below 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 output once it has been produced since there are no constraints on power. As such, 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 legal system, and provide a randomized experiment to test this theory.

³⁰ e could also be viewed as some costly input such as labour or capital.

A2. A solution: access to the legal system

One solution is access to the legal system. 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. Access to the legal system 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 access to the legal system can really affect growth.

A theoretical model is important to clarify the experimental design used in this paper. To model the legal system 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 the courts 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 expropriated output. 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.

In terms of costs, 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.³¹ 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):

$$(A1) \quad p\beta^T - l_p \geq 0$$

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. In the section below, we describe in greater detail the informal institutions in the context of our experiment.

The suing condition (A1) shows that an exogenous decrease in legal fees l_p would increase the incentives for the investor to sue, thereby increasing the fraction of the output recovered and the

³¹Kenya 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.

incentives to produce.

In turn, this influences 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:

$$(A2) \quad p\beta^T + l_d \geq 1$$

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, 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 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 the next section, we describe how, in practice, 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 (A1) and the no-expropriation condition (A2)) define three scenarios. 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 legal systems 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.³² Local lawyers and judges are asked about 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

³²See <http://www.doingbusiness.org/Methodology/Enforcing-Contracts>

structure, proceedings, and case management systems. Panel (a) of Figure A1 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 countries in green in Panel (a), there may be incentives to expropriate given the values of p , T , and l_p .³³ 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 scenario (no incentives to sue) or in the second (incentives to sue but also incentives to expropriate).

An intervention decreasing legal fees may move countries from the first to the second scenario. In Panel (c) of Figure A1, 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 in red and orange in Panel (b)), the maximization problem then becomes:

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

Without loss of generality we set $\bar{e} = 0$, which does not affect the calculations. 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.³⁴

Thus, we propose the following hypothesis:

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

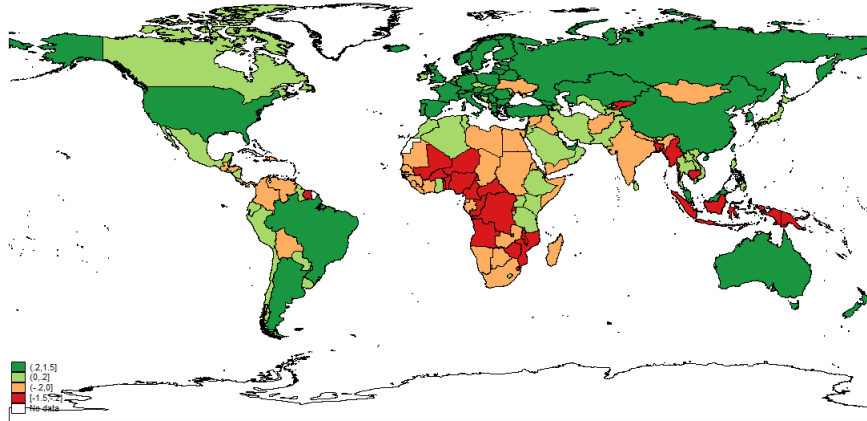
In this paper, we also test an intervention providing legal information to people about their rights. To the extent that this legal information may improve their perceptions of the probability p of winning in court, these interventions may also increase the equilibrium effort level.

³³The Doing Business data does not give estimate for l_d . As a first approximation, we use $l_d = l_p$.

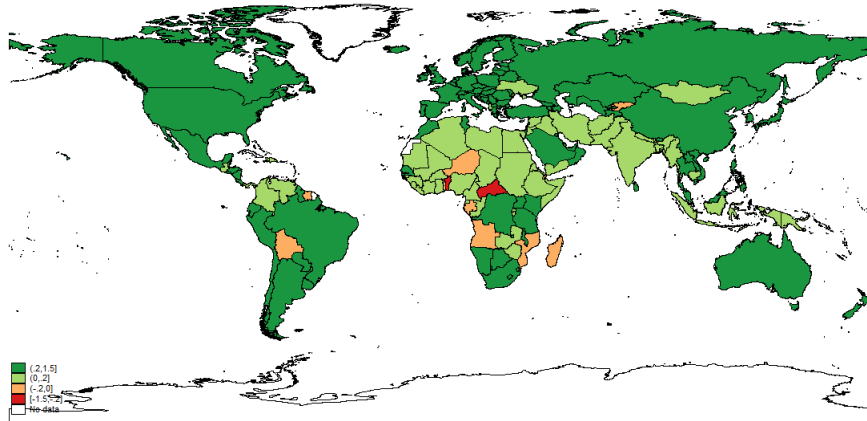
³⁴Note that the expropriator also benefits: the expropriator expropriates the output, but is sued and must repay with probability p after time T , and must pay the legal fees l_d , for a net benefit of $\frac{(p\beta^T - l_p)A^2}{2}(1 - p\beta^T - l_d)$. A decrease in legal fees l_p increases the payoff 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?

FIGURE A1. INCENTIVES TO SUE IN THE WORLD

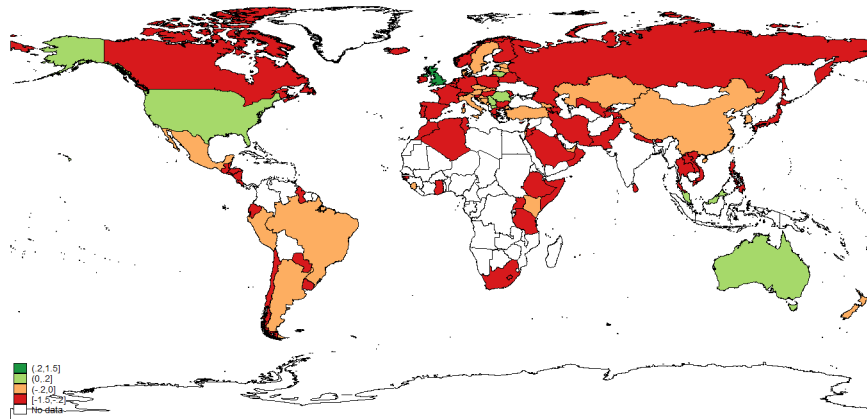
(a) Incentives to sue $p\beta^T - l_p$



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



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



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. In panel (b), lawyer fees are set to zero in the suing condition. l_p is the sum of court fees and enforcement fees. Panel (c) shows the incentives to expropriate.

APPENDIX B: CALIBRATION OF THE MODEL

TABLE B1—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	$e = (p\beta^T - l)^2 (\frac{A}{2})^2$	1.12	Effort increases by 12% (comparison: effort Intervention / effort Informal)

Access to the legal system 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 legal system.

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:

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

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 legal system bolsters the value of the collateral. The legal system 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:

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

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: $\sqrt{e}r + (1 - \sqrt{e}) \cdot \left[\frac{(p\beta^T - l_p)A^2}{2} + S \right] - \rho$. 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 ensures 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 surplus is zero, thus $\sqrt{e}r = -(1 - \sqrt{e}) \cdot \left[\frac{(p\beta^T - l_p)A^2}{2} + S \right] + \rho$. 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 assets in 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 D: WHAT THE LAWYER DOES

As noted in Section III 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 D1. 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 D1—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.

D1. 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.

D2. 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.

D3. 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 certificate³⁵ 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

³⁵See Table D1 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.

D4. 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 July 15 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.

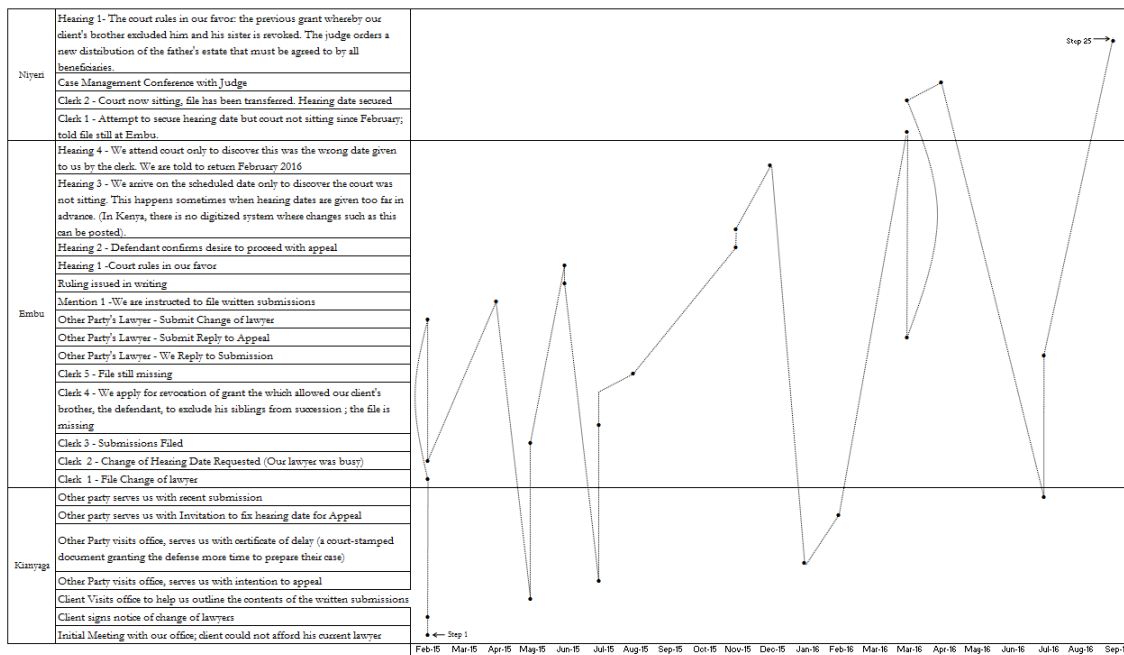
D5. Case 5: Illegal Exclusion from Succession

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 forth 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. Figure D1 details all the steps involved in this case.

FIGURE D1. STEPS OF CASE 1



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.

D6. 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.

D7. 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.

D8. 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.

D9. 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 judge 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.

D10. 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 E: 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 20,000Ksh 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 20,000Ksh. 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 off the 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 he 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 participant 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 court had established that the deceased had sold the property to a third party (the one who is tending 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 F BALANCE OF OBSERVABLE CHARACTERISTICS BY LEGAL INFORMATION SESSION TYPE

TABLE F1—BALANCE OF OBSERVABLE CHARACTERISTICS BY LEGAL INFORMATION SESSION TYPE

	Search Certificate		Succession			Buy/Sell			Will		Group Training			
	(1) T	(2) C	(3) Diff (p-val)	(4) T	(5) C	(6) Diff (p-val)	(7) T	(8) C	(9) Diff (p-val)	(10) T	(11) C	(12) Diff (p-val)	(13) T	(14) Diff (p-val)
Age	45.10	46.45	-1.35 (0.70)	49.08	47.51	1.57 (0.53)	48.37	45.59	2.79 (0.17)	51.16	49.01	2.14 (0.40)	49.41	-1.23 (0.30)
Male	0.87	0.80	0.07 (0.53)	0.84	0.77	0.07 (0.35)	0.79	0.88	-0.09 (0.11)	0.76	0.84	0.08 (0.26)	0.7	-0.06* (0.09)
Education	8.34	7.63	0.72 (0.42)	8.93	9.02	-0.09 (0.96)	8.48	9.14	-0.66 (0.19)	8.07	8.65	-0.57 (0.34)	8.76	0.18 (0.55)
High school?	0.35	0.24	0.11 (0.42)	0.51	0.45	0.06 (0.54)	0.43	0.50	-0.08 (0.37)	0.39	0.43	-0.04 (0.58)	0.48	0.04 (0.32)
Ag. prod. per day per cap (USD PPP)	4.85	2.08	2.78** (0.04)	3.96	2.45	1.51 (0.23)	2.88	2.49	0.38 (0.69)	2.48	4.65	-2.17 (0.19)	2.73	-0.48 (0.41)
Land divided into formal titles	0.44	0.32	0.12 (0.43)	0.71	0.68	0.03 (0.62)	0.79	0.78	0.01 (0.85)	0.75	0.83	-0.08 (0.26)	0.79	0.06 (0.11)
Last year, borrow from credit union?	0.22	0	0.22*** (0.01)	0.07	0.05	0.02 (0.62)	0.09	0.10	-0.01 (0.80)	0.11	0.07	0.04 (0.43)	0.02	-0.07*** (0.00)
Last year, borrow from microfinance institution?	0.04	0	0.04 (0.30)	0.02	0.05	-0.03 (0.36)	0.05	0.05	0 (0.88)	0.01	0.03	-0.02 (0.55)	0.05	0.02 (0.18)
Last year, borrow from bank / govt agency?	0	0	0 N.A	0	0.03	-0.03 (0.17)	0.01	0.01	0 (0.93)	0	0.01	-0.01 (0.31)	0.01	0.00 (0.74)
Sample Size	23	25		57	62		79	90		72	69		206	

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent confidence-interval, * Significant at 90 percent. 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.

APPENDIX G: EFFECTS OF LEGAL INFORMATION INTERVENTIONS

Table G1 below presents the results disaggregated by the legal information intervention. Several important results can be noted.

First, the first treatment providing a search certificate was quickly discontinued for practical reasons. It turned out that participants were unable to give us the correct plot number, an information required to retrieve the relevant search certificate. This happened because participants interested in getting their search certificate were mostly adult children cultivating the land of their parents, not in possession of any legal title since no succession or land transfer had officially been done. These children could not access the legal title of their parents. To infer plot numbers, the paralegals tried to use local maps. However, the maps were outdated, and the resulting search certificate often had no link whatsoever with the particular plot in question. Overall, the paralegals were able to provide very few search certificates. Considering this failure, this treatment was quickly discontinued, hence the very small sample size. The lack of significant effects for this intervention does not mean that providing search certification has no effects, just that the paralegals were unable to implement this strategy in practice.

Second, the training on the process of succession has a negative effect on the likelihood to use a title deed as opposed to more informal means when protecting the land, as evidenced by the negative coefficient in Column (1). A potential explanation is the following. The Kenyan Law of Succession states that no children can be excluded from the process of succession. This is different from customary law. According to customary law, any child, especially married daughters, can be excluded. Thus, the training on the Kenyan Law of Succession may empower individuals with the knowledge that they cannot be excluded regardless of whether or not they have a valid title. This may explain why people involved in succession cases rely less on title deed. In contrast, using informal means to acquire a claim within the family may be more critical in these cases. For example, working hard on the land (even if temporary) may be critical in a time of succession. This may explain the positive effect on days worked in Column (2). Interestingly, these effects are also present in the group training where a similar training on the Kenyan Law of Succession was undertaken.

The other results are less in line with the theory according to which the training on succession will clarify property rights and increase investment and agricultural productivity: there is no effect on investment in fertilizer, access to credit and agricultural production. One explanation is that this intervention is relatively “light-touch”: it is to be expected that a 90 minute training may not have large effects on investment and productivity, especially a year later as measured in these

TABLE G1—TREATMENT EFFECTS DISAGGREGATED BY LEGAL INFORMATION SESSION

	(1) Use Deed to Protect Land?	(1) Total days worked	(3) Fertilizer	(4) Borrowed past year?	(5) Agricultural Production
Treatment - Legal Representation	0.10** (0.03)	4.70*** (1.06)	5.23 (2.89)	0.11** (0.03)	291.81*** (64.17)
Treatment - Search Certificate	-0.01 (0.06)	-97.29 (98.35)	-5.35*** (1.55)	-0.05 (0.08)	-357.52 (248.21)
Treatment - Succession	-0.07 (0.04)	35.99*** (7.32)	5.36 (7.67)	-0.00 (0.09)	-1,748 (1,116)
Treatment - Buy/Sell	-0.02 (0.02)	-1.42 (1.83)	4.00*** (0.98)	-0.08 (0.10)	-18,223 (23,557)
Treatment - Will	0.03 (0.02)	-0.19 (6.56)	-6.39 (4.35)	0.03 (0.02)	1,097** (379.36)
Treatment -Group Trainings	-0.04 (0.03)	9.17** (2.58)	6.80*** (2.21)	0.04 (0.03)	-678.30 (675.50)
Control Mean (sd)	0.08 (0.26)	28.88 (28.24)	58.09 (94.43)	0.11 (0.31)	791.37 (9,413)

endline surveys.

The two other treatments on the buying and selling process and writing wills also have very limited effects: most of the coefficients on days worked, investment, credit and agricultural production are not significant. Some coefficients are even negative, especially for the group trainings, contrary to the expected effects.³⁶ The overall conclusion is that these training interventions have much weaker effects than the legal representation intervention. The implication is that the assistance of a lawyer for 2 years cannot be easily substituted by some legal information.

³⁶The results for the group training must be considered with great caution since the group leaders of the control group for this intervention did not allow us to collect data among their group members. We use here the control group of the succession experiment as a control group for the group trainings, which is of course not ideal.

APPENDIX H: 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 $\frac{w.N}{T.s}$, 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 : $A^2 > \frac{8w}{(\beta^T - 4l_p)T.s}$. 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 (2018) evaluates this claim empirically by evaluating the impact of judicial reforms on economic activity.

APPENDIX I: COST OF LEGAL AID PROVISION

Table I1 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.

TABLE I1—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.

APPENDIX J: BREAKDOWN OF THE IMPACT OF LEGAL REPRESENTATION ON DAYS WORKED

Table J1 below decomposes the impact of legal representation on the number of days of agricultural labor worked on the household farm in the past month. When aggregated across all individuals, as shown in Table 15, the effect is economically and statistically significant. When broken down into its various components, however, neither is significant on its own, suggesting the increase in days worked is not driven by any particularly member of the household.

TABLE J1—IMPACT OF LEGAL REPRESENTATION ON DAYS WORKED BY HOUSEHOLD MEMBER

	(1)	(2)	(3)	(4)
	Household Head (HHH)	Spouse of HHH	Children of HHH	Parents of HHH
Treatment	-0.64	0.94	1.10	-0.00
(s.e)	(1.05)	(1.16)	(0.63)	(0.07)
	(5)	(6)	(7)	(8)
	Parents (in-law) of HHH	Siblings of HHH	Siblings (in-law) of HHH	Other Family/ Relatives of HHH
Treatment	-0.04	-0.09	0.11	0.33
(s.e)	(0.04)	(0.08)	(0.12)	(0.19)
	(9)	(10)	(11)	
	Hired Labor	Friends	Other	
Treatment	2.08	0.04	0.00	
(s.e)	(1.36)	(0.34)	(0.00)	

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. Outcomes measure the total number of days worked on the respondent's farm in the past month by each household member.,

APPENDIX K: 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 16 in the paper’s main body this was not the case. The subsections below describe how stress and worries were calculated.

K1. Stress

Stress was measured using the ten question Perceived Stress Scale (PSS10), a widely-used measure of stress. As shown in Table K1 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.

TABLE K1—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.

K2. Worries

Worries were measured by aggregating across 15 individual worries. These are listed in Table K2. 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 K2—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

K3. Appendix : Calculation of Depression

Depression was measured on a 90-point scale, based on 17 question from the World Health Organization's ICD-10 Diagnostic Manual. The 17 questions are listed below.

TABLE K3—DEPRESSION

(1) Have you ever felt low in spirits or sad?	/6
(2) Have you lost interest in your daily activities?	/6
(3) Have you felt lacking in energy or strength?	/6
(4) Have you felt less self-confident?	/6
(5) Have you had a bad conscience or feelings of guilt?	/6
(6) Have you felt life life wasn't worth living?	/6
(7) Have you had difficulty concentrating?	/6
(8) Have you felt very restless?	/6
(9) Have you felt subdued or slowed down?	/6
(10) Have you had trouble sleeping at night?	/6
(11) Have you suffered from reduced appetite?	/6
(12) Have you suffered from increased appetite?	/6
(13) Have you experienced happiness and cheerfulness?	/6
(14) Have you felt calm and sad?	/6
(15) Have you felt energetic enough to work?	/6
(16) Have you woken up when you are relaxed?	/6
(17) Has you day been filled with things that make you happy?	/6
Total	/78

Note: All questions are scored out of 6 with the following values: 1=Always 2=Most of the time 3=Slightly more than half the time 4=Slightly less than half the time 5=Some of the time 6= At no time. Questions (13), (15), (16), and (17) are coded negatively when calculating the index as higher values for these questions measure increased happiness.

APPENDIX L: ROBUSTNESS CHECK: MAIN OUTCOMES WITHOUT CONTROLS

TABLE L1—MAIN OUTCOMES WITHOUT CONTROLS

	(1)	(2)	(3)	(4)	(5)
	Title Deed	Conflict Increase Land	Credit Union Loan	Agricultural Output	Days Worked on Farm
Treatment	0.10**	0.55*	0.09**	11.87	5.40***
(s.e)	(0.03)	(0.26)	(0.02)	(144.02)	(1.30)
[FDR]	[0.05]**	[0.39]	[0.05]**	[0.24]	[0.04]**
[Fisher P-val]	[0.01]***	[0.45]	[0.06]*	[0.49]	[0.07]*
[WCB]	[0.03]**	[0.55]	[0.07]*	[0.20]	[0.04]**
Treatment (Legal Info)	-0.02	-0.29	-0.05***	-5,267	-1.87
(s.e)	(0.01)	(0.34)	(0.01)	(7,021)	(8.54)

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). This tables summarizes our main findings. Outcome (1) corresponds to Outcome (19) in Table4. Outcome (2) corresponds to Outcome (1) in Table 6. Outcome (3) corresponds to Outcome (4) in Table 10. Outcomes (4) and (5) correspond respectively to to Outcomes (1) and (2) in Table 13. [FDR] are the Sharpened False Discovery Rate adjusted q-values from the family of the specific outcome. [Fisher P-val] are the p-values from the exact Fisher test. [WCB] are the p-values from the Wild Cluster Bootstrap methodology.

APPENDIX M: INVERSE PROBABILITY WEIGHTING

TABLE M1—SENSITIVITY TO ATTRITION: INVERSE PROBABILITY WEIGHTING

	(1)	(2)	(3)	(4)	(5)
	Title Deed	Conflict Increase Land	Credit Union Loan	Agricultural Output	Days Worked on Farm
Treatment (Legal Representation)	0.10**	0.51**	0.11**	334.56**	5.34***
(s.e)	(0.03)	(0.14)	(0.04)	(152.48)	(0.91)
Treatment (Legal Info)	-0.03**	0.27	-0.04**	-5,754	-2.08
(s.e)	(0.01)	(0.22)	(0.01)	(8,090)	(9.00)

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). This tables summarizes our main findings. Outcome (1) corresponds to Outcome (19) in Table4. Outcome (2) corresponds to Outcome (1) in Table 6. Outcome (3) corresponds to Outcome (4) in Table 10. Outcomes (4) and (5) correspond respectively to to Outcomes (1) and (2) in Table 13. Weights are the inverse of the probability to be kept in the sample, based on a probit regression of attrition on age, education, gender, and number of plots.

APPENDIX N: LAGGED OUTCOMES

Table N1 below shows the results for first difference (Panel A) or controlling for baseline outcomes (Panel B). The last line shows a P-Value of a chi-squared test of the equality of the coefficients of the variable “Treatment” in both regressions. The results of Panel A and B are similar, slightly smaller in magnitude for “days worked on farm” in Column (5).

TABLE N1—SUMMARY:

	(1)	(2)	(3)	(4)	(5)
	Title Deed	Conflict Increase Land	Credit Union Loan	Agricultural Output	Days Worked on Farm
Panel A: First Difference					
Treatment	0.11**	0.57***	0.11**	269.71*	4.57***
(s.e)	(0.03)	(0.11)	(0.03)	(128.87)	(0.87)
Panel B: Lagged outcomes					
Treatment	0.08***	0.75***	0.06	-86.00	1.79
(s.e)	(0.01)	(0.13)	(0.03)	(82.48)	(2.27)
P-Value	0.701	8.84e-09	0.180	0.370	0.239

	(1)	(2)	(3)	(4)	(5)
	Title Deed	Conflict Increase Land	Credit Union Loan	Agricultural Output	Days Worked on Farm
Panel A: First Difference					
Treatment	0.10**	0.54***	0.11**	291.81***	4.70***
(s.e)	(0.03)	(0.12)	(0.03)	(64.17)	(1.06)
Panel B: Lagged outcomes					
Treatment	0.08***	0.79***	0.06	250.97**	1.64
(s.e)	(0.01)	(0.10)	(0.03)	(63.15)	(1.66)
P-Value	0.551	0.096	0.190	0.553	0.035

Note: *** Significant at 99 percent confidence-interval, ** Significant at 95 percent, * Significant at 90 percent. The sample includes all participants (N=909). Outcome (1) corresponds to Outcome (19) in Table 4. Outcome (2) corresponds to Outcome (1) in Table 6. Outcome (3) corresponds to Outcome (4) in Table 10. Outcomes (4) and (5) correspond respectively to to Outcomes (1) and (2) in Table 13. Panel A shows the first difference results, while Panel B shows the results with lagged outcomes. The last line shows a P-Value of a chi-squared test of the equality of the coefficients of the variable “Treatment” in both regressions (and the variables “Sample_LegalInformation” and “LegalInformation” out of completeness).