

Know your rights! A field experiment on legal knowledge, property rights, and investment in Kenya

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ABSTRACT

Knowledge of the laws is needed for them to have an impact. In this article, we test the effects of disseminating legal knowledge, carefully designed to the particular circumstances of small-scale farmers living with uncertain property rights on their land. We find that greater legal knowledge increases the security of property rights and investment on the land (*JEL* K4, O1).

1. INTRODUCTION

The security of property rights has been shown to be a key driver of economic development, both on a macro and micro level (Besley 1995; Acemoglu et al. 2001; Banerjee et al. 2002). A key question then is how to secure and enforce property rights in practice. One way is to use courts, and an unbiased legal system. However, in most countries, courts can be slow, corrupt, and difficult to reform (Chemin 2020). High lawyer fees can also dissuade the general population from accessing the courts, especially in developing countries. Access to lawyers could be subsidized and has been shown to causally increase investment and agricultural productivity in a recent field experiment (Aberra and Chemin 2021), but would be onerous and could clog the courts if scaled up to a national level.

In this article, we use another approach; employing the knowledge accumulated by representing participants in courts in Aberra and Chemin (2021) to address the root cause of conflicts. The objective was to inform people of their property rights, which may translate into greater investment and preempt disputes from occurring in the first place.

The precise nature of the intervention is informed by five years of fieldwork in rural Kenya, in which we opened a “Community Justice Center,” staffed with Kenyan lawyers and paralegals, offering free legal representation to households involved in land conflicts (Aberra and Chemin 2021). In that field experiment, we discovered that the disputes were

mainly caused by two processes which are not well understood by the general population; the succession process and the process of buying or selling land. These are the two main modes of land acquisition and disputes related to these two processes are prevalent throughout much of sub-Saharan Africa (Bruce and Migot-Adholla 1994).

In the case of succession disputes, the deceased often leaves no wills, such that the family fights over the distribution of the land. Women are especially vulnerable, as customary law in Kenya does not provide for land to female descendants. This is in sharp contrast with recent progressive Kenyan legislation that guarantees gender equality and clearly states that all descendants are entitled to a parcel. Another issue is that the law outlines a formal process to organize a proper succession but most people are unaware of these steps and/or do not follow them well. These issues (absence of wills and incomplete succession processes) lead to inefficiencies: the plots remain undivided, people are unsure if the land cultivated belongs to them, this dampens investment on the land.

To address these issues, the team of Kenyan lawyers and paralegals designed a training program on the process of succession. This training describes the exact steps to follow and institutions to visit in order to implement a legally valid succession process. It emphasizes the importance of writing a will, and explains that women are entitled to an equal piece of land according to the new laws. The goal is to inform cultivators about their property rights, and prevent succession disputes from ever going to court at a potentially much lower cost than legal representation. We refer to this as the succession intervention.

The second intervention concerned the process of buying and selling land. As with succession, the formal steps to organize a proper transfer of land are not well-known. In the previous field experiment, we frequently observed in court that at least one of the parties had not followed all of the required steps; ownership had never been officially transferred. This generated protracted conflicts in the future when the land was sold or when there was a boundary dispute but no proper documentation. The team of Kenyan lawyers and paralegals designed a training program explaining the precise steps to follow to rightfully buy or sell land. We refer to this as the buy/sell intervention.

The third intervention explained how to write a will: this easy step can help to avoid disputes down the line, yet very few people do it. An example of a will was given, as well as advice on how to fill it. We refer to this as the will intervention.

Finally, the fourth intervention combined these three trainings into one, and was organized in groups instead of being given to individuals. The rationale was that peer learning within groups can improve the efficacy of information campaigns (Chemin 2016). To do so, we visited already existing informal groups. Most of these groups turned out to be women's mutual aid groups. To maximize the impact of these sessions, the team of Kenyan lawyers and paralegals added a "women's rights" module, explaining the various new progressive laws recently passed in Kenya guaranteeing equal treatment for women. This is important for agricultural productivity; women are the primary producers of food in the fields, yet are frequently discriminated against in Kenya (Harari 2019), and make up a disproportionate segment of the victims of land conflicts (Deininger and Castagnini 2006). This final intervention thus differs from others on multiple levels: it is delivered to groups, not individuals; it combines the three trainings; it adds a new training on women's rights; and it targets women. Our experimental design cannot disentangle which of these particular features would drive any results. Our more modest goal was to design an intervention with maximum impact. We refer to this as the Group Training intervention.

We implemented these four interventions on a total sample of 961 small-scale farmers. We collected a baseline survey, delivered the trainings, and, one year after the trainings, re-administered the exact same household survey.

We find that the interventions improved people's understanding of the processes of succession and buying/selling land. In particular, we find that the Group Training intervention had the largest effect and increased legal knowledge by a significant 0.44 standard deviations.

We also find that the interventions increase the security of property rights because participants followed the steps and registered the land as their own. We measure property rights following [Besley \(1995\)](#), by asking questions on the right to cultivate, take loans, rent, sell, leave to dependents, or gift their land, with or without family approval. We build an index measuring this bundle of property rights and find that the Group Training intervention (which contained this Succession intervention) expands that bundle by a significant 0.61 standard deviations. We find that respondents involved in succession disputes or buying/selling land follow the steps explained in the training and are more likely to become the legal owner of their land.

Finally, we look at the effects on investment, according to the theory that greater security of property rights will translate into more land improvements. We find more long-run investments on the land (such as building grain storage rooms, planting trees, and terracing the land), adopting new irrigation techniques (building water storage), as well as adopting new agricultural techniques (crop rotation and bucket planting). We combine these measures into an index and find that the Group Training intervention in particular increases investment by 0.32 standard deviations. Overall, we find that the Group Training intervention has a large effect on legal knowledge, property rights, and investment.

Our article contributes to the field of "legal empowerment," initiated by some international agencies, and defined as the provision of legal services to community-based organizations and vulnerable sections of society to use and even shape the laws for their protection ([Dhakai and Misbah 1997](#); [Golub 2003](#); [Dastgir and Chakraborty 2008](#); [Burke and Egaru 2011](#); [Carfield 2011](#); [Kapur 2011](#); [Behrman et al. 2013](#); [Kumar 2013](#)). Large-scale programs have been implemented but not tested rigorously. Our article provides a justification for these programs.

Our article also contributes to a more academic literature that has attempted to measure the causal effect of legal knowledge on economic outcomes, using instrumental variables ([Deininger et al. 2008](#); [Che and Zhang 2017](#)). The issue is that finding exogenous instrumental variables that satisfy the exclusion restriction is difficult. Our article provides a randomized experiment to circumvent these issues. [Sadka et al. \(2018\)](#) conduct an RCT in which plaintiffs in severance cases are informed of their expected payout taking into account the speed of courts and the likely probability of winning using past data on actual cases. When plaintiffs are shown this calculation, they settle more out of court. Our article is different since we give legal information on the laws (the processes of succession and buying or selling land), not on the functioning of the courts. [Blattman et al. \(2014\)](#) conducted a randomized experiment which they tested the impact of mass education on alternative dispute resolution in Liberia, but found no significant impact on land ownership, security, or investments. [Mueller et al. \(2018\)](#) implemented a randomized experiment which they gave communities in Tanzania access to paralegals, and estimated positive impacts on women's legal knowledge, legal empowerment, but found no significant impact on practices related to land management. This article presents evidence that targeted legal education can trigger a cascade of benefits which ultimately leads to higher investments.

Our article provides an important recommendation about the content of legal knowledge interventions. In our study, we find a positive effect for Group Training interventions, but less so for the succession, buy/sell, and will interventions. The difference in these findings may be explained by the fact that the Group Trainings included the three modules together, it was organized in groups (with possibilities of peer learning), and it was delivered to

women with a focus on women's rights. We find smaller effects for the buy/sell or wills intervention. One explanation is that there was only one year in between our baseline and endline; the effects of these interventions may take longer to appear. A better understanding of the steps to buy and sell land will only pay off at a later time when the owner wishes to resell or when a conflict occurs in the future and no appropriate documents are available. Similarly, understanding how to write a will only pays off in a future estate succession. We cannot discard the possibility that these trainings will have a greater effect in the long run. Finally, the large effects of the Group Trainings intervention do not mean that it will work in every context. In our case, extensive fieldwork with a team of four lawyers who were taking on land dispute cases in civil court was necessary to inform the content of the interventions.

The rest of the article is organized as follows. Section 2 surveys the existing research on legal knowledge in developing countries. Section 3 describes the interventions used in our research. Section 4 describes the experimental design. Section 5 presents the empirical strategy used to measure the impact of our interventions. Section 6 presents the results and Section 7 concludes.

2. LITERATURE SURVEY

Numerous agencies have emphasized the importance of legal information as a means of empowering the general population and protecting their rights. Yet there is very little evidence that legal information empowers the population. Since 1997, the World Bank has loaned over \$300 million to projects that include provisions for the dissemination of legal knowledge to the general public, either via mass media campaigns or in-person community training sessions.¹ In 2001, the Asian Development Bank acknowledged the importance of legal awareness campaigns (either via traditional media or in-person training) as a catalyst for inclusive economic growth (Golub and McQuay 2001). For the past two decades, law and development practitioners have championed an approach referred to as “legal empowerment,” defined as “providing access to legal services and knowledge to increase disadvantaged populations’ control over their lives” (Golub 2003).

The evidence for the impact of such projects, however, is scant. A case study by Behrman et al. (2013) points to the potential value of community-based legal awareness programs focused on women's land rights in Uganda and Tanzania. Focus group discussions suggested that improving women's knowledge of their rights under recently enacted progressive legislation could translate into more efficient land use. Several NGO reports have also highlighted the importance of legal awareness on increasing agricultural productivity in Northern Uganda (Burke and Egaru 2011; Carfield 2011) and Mozambique (Kapur 2011). Comparable conclusions are also drawn from several reports in South Asia. A 2013 study sponsored by Landesa, an NGO whose stated mission is to “secure legal land rights for the world's poorest families,”² emphasized the value of increased legal literacy among the rural poor (Kumar 2013). The report noted that pro-poor legislation that strengthened land rights would have a muted impact on food security in the absence of community-wide legal awareness. In a similar vein, an Oxfam study in Bangladesh investigated a capacity building program for poor members of indigenous minorities in the country's rural north (Dastgir and Chakraborty 2008). One of the program's goals was to increase awareness of community members' land rights. Though only qualitative, the report's findings point to a decrease in

¹ <https://projects.worldbank.org/en/projects-operations/projects-home?lang=en>. This link includes all projects with an explicit component devoted to some form of legal empowerment.

² <https://www.landesa.org/>.

land grabbing from wealthy neighbors and a subsequent increase in food security. In one of the earliest evaluations of legal empowerment, a USAID-sponsored legal literacy campaign for women in Nepal was implemented in three villages, while three other villages (not randomly selected) served as a control group (Dhakar and Misbah 1997). Women in treatment villages were more than twice as likely to report owning income-producing assets and more likely to have a say in household decision-making. These reports and case studies all suggest a potentially positive effect of increased legal awareness of land rights on the productivity of small-scale farming families.

The issue with these studies is that, while several of them make use of comparison villages, the actual assignment of treatment status is not random, limiting our ability to make any causal inference about these programs.

Since legal knowledge is endogenous, credible identification strategies must therefore be used to identify its effects on economic outcomes. Che and Zhang (2017) use cross-sectional data from Chinese farming households in 95 villages to measure the impact of legal knowledge on agricultural production. The authors proxy legal knowledge as a binary indicator for whether or not farmers knew that they could veto land re-allocation decisions made by local authorities within a fixed contracting period. They find that legal knowledge increases annual agricultural production between 24% and 32%. When farmers had a clearer understanding of their land rights they increased the value of agricultural production through two channels: increased use of inputs (manure) and effort (labor productivity). To address the issue that legal knowledge is endogenous, they use as an instrumental variable a dummy indicator for whether or not a communist party official is a member of the respondent's household. This choice, however, is problematic as political connections are not exogenous and likely correlated with farm productivity regardless of one's legal knowledge.

Deininger et al. (2008) look at how the awareness of favorable legal provisions affects agricultural investment for Ugandan farming households. Legal knowledge is proxied by a series of multiple choice questions regarding the 1998 Land Act, which granted formal ownership to customary farmers, strengthened tenants' rights, and nullified gender-based discriminatory customs concerning land use and inheritance. The authors find that legal knowledge increases both short- and long-term investments. Since the majority of participants were unaware of their recently legislated rights, the authors conclude that government-sponsored dissemination campaigns would yield high social returns. To address the issue that legal knowledge is endogenous, they use three instrumental variables: (1) radio ownership and parental educational attainment, (2) a dummy indicator for having been involved in a previous land conflict, and (3) an indicator for living on freehold (as opposed to customary) land. While this article is definitely pushing the frontier by addressing the endogeneity of legal knowledge, the issue is that these instruments are not exogenous, and likely correlated with investment other than through greater legal knowledge.

The few randomized control trials on legal knowledge have focused on non-economic outcomes, such as perceptions of the judiciary and electoral participation. To the best of our knowledge, the effect on effort, income, investment, or any outcome related to participants' economic livelihood has yet to be rigorously measured in field experiments. An RCT in Pakistan's Federally Administered Tribal Areas measured the impact of a legal literacy campaign in several villages (Cyan et al. 2017). The outcomes measured focused solely on respondents' perceptions of the local judiciary. Overall the campaign led to large increases in villager satisfaction with the courts. Another RCT in China's Fujian and Liaoning provinces examined the impact of providing training on women's voting rights on electoral participation (Pang et al. 2013). Women who participated in the training sessions were more likely to vote in upcoming village elections. Also in China, Whiting (2010) determines that legal

awareness publicity campaigns on TV and in newspapers significantly increases the likelihood of using the judiciary in the event of a hypothetical conflict.

A related paper is [Sadka et al. \(2018\)](#), in which the authors implement a randomized experiment in Mexico City that measured the impact of providing information to plaintiffs in severance cases in the country's largest labor court.³ Using data from past cases, they find that severance payments to plaintiffs are relatively small, courts are slow, few plaintiffs understand what they are legally entitled to, and are overconfident about the probability of winning. When a “calculator,” shown to a randomly chosen subset of plaintiffs, depicts the overall expected payout for their case using this past data, people prefer to settle out of court (the settlement rate goes from 6% to 11%).⁴ Our article is different since we give a different type of legal information to people not yet engaged in disputes. Our intervention does not provide information about the speed of courts or the probability of winning; it provides strategies on ways to prevent disputes from arising in the first place. Moreover, our intervention is related to disputes involving property rights, such that we can directly test the effect of legal information on the security of property rights and investment.

Our article is also closely related to [Blattman et al. \(2014\)](#) and [Mueller et al. \(2018\)](#) who study the provision of legal information. We contribute to these papers by looking at investment on the land.

We now explain in detail the interventions we implemented.

3. THE INTERVENTIONS

The nature and content of the interventions in this article are largely informed by fieldwork conducted between 2013 and 2018 in the Central Kenyan county of Kirinyaga ([Aberra and Chemin 2021](#)). The goal in that study was to recruit participants involved in on-going legal conflicts, and to offer them legal representation in courts to resolve their conflicts. To do so, we visited door-to-door a total of 961 small-scale farmers in rural Kenya. Thirty-one percent of farmers in that sample were involved in ongoing land conflicts and became participants for that study.

After establishing our “Community Justice Center” and conducting 1078 meetings between these participants and our team of lawyers and paralegals, we realized that the conflicts were caused by: (1) a lack of official documentation proving land ownership, (2) a lack of understanding about Kenyan law on estate succession, (3) a lack of knowledge about the proper steps to follow when buying or selling land (resulting in dishonest individuals appropriating land), and (4) an absence of legally valid wills that would clarify ownership to the estate's beneficiaries.

The goal of this article was to work with the rest of the sample not involved in on-going legal conflicts, addressing the causes of these conflicts at their root by designing four interventions designed to prevent these four issues from occurring in the first place.

3.1 Provision of documentation on ownership

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

³ Another treatment arm, less related to this article, offered the opportunity to have the case mediated instead of going before a judge.

⁴ The effect is even greater when the information is given to the respondent, not only to his lawyer (which points to information retention by lawyers).

procedures, fees, and a lack of knowledge on how to go about obtaining these documents. Firsthand experience on the part of paralegals suggests that 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.

The goal of the intervention was to procure a “search certificate,” a document purchased at the Lands Office that states the name of the current owner of the plot of lands. The document was offered at no cost in this intervention (it costs the equivalent of 5 USD). The hypothesis is that clarifying property rights will increase investment.

We encountered a significant obstacle when implementing this intervention: many participants were unable to give us the official plot number necessary to obtain a “search certificate.” The main reason was that the land still belonged to their parents or grandparents (who were still alive) and no formal succession plans had been undertaken. Land can be a sensitive topic in Kenya, and participants did not feel comfortable asking their parents for official documentation as they were afraid they would appear to be wanting to “steal the land.” After several unsuccessful attempts to obtain the plot numbers necessary to get the search certificate, we thus decided to discontinue the intervention. In the empirical analysis, we control for observations in the treatment or control groups of this “failed” intervention.

3.2 Training on the process of succession

A major finding of [Aberra and Chemin \(2021\)](#) was that most disputes in court were related to the succession process. Inheritance is the main mode of land acquisition (62% of plots in our sample were acquired in this way)⁵ yet most smallholders do not fully understand this process and thus had not successfully completed it. This left them with no official title to the land.

The formal procedure of filing for succession is not overly complex but needs to follow precise steps. First, an individual must apply in court to become the administrator of the deceased’s estate. Then, the administrator must file the necessary paperwork for the estate to be distributed. This includes: (1) a death certificate of the property owner; (2) official identity cards of witnesses who are not beneficiaries; (3) 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; (4) a list of dependents and copies of their identity cards; (5) 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 (6) a marriage certificate for the surviving spouse. The succession must then be approved and stamped by the “Lands Office.”

None of these documents or procedures are particularly difficult to obtain but they are largely unknown to the general population. The consequences of not filing a proper succession can often be severe. Many farmers have no official title deeds because they have not followed the formal succession process after the death of their parents or grandparents. Cultivators of the land are unsure whether they really own the land. This may dampen investment.

Moreover, very few people write wills, such that family members fight over the exact distribution of the land at the time of succession. Women are particularly vulnerable. According to customary law, succession for most Kenyan tribal groups 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

⁵ The other categories are buying (15%), gift (13%) and given by the community (8%).

portion of the estate. Kenyan law establishes a less discriminatory set of rules for the succession process, ensuring that all beneficiaries are entitled to an equal piece of the land.

A training session on the process of succession was designed by the team of Kenyan lawyers and paralegals to address these issues. The Kenyan paralegals explained the precise steps and procedures to undertake a proper succession process, emphasizing the importance of writing wills, explaining the Kenyan laws guaranteeing an equal share to all descendants including women. The entire content is available in [Supplementary Appendix Q](#). The actual presentations to the participants were given by the paralegals, in the local vernacular (Kikuyu), and explained in simple terms to make sure participants understood. A booklet summarizing the main points was left with respondents. We refer to this as the succession intervention.

The objective for this intervention was to inform participants on the process to follow in case of succession. It also sought to inform people engaged in a succession process (in particular, women) that they were entitled to a portion of land, thereby strengthening their perceived property rights. This may translate into greater investment in the short run since farmers are more secure with the knowledge that the fruits of their labor will accrue to them.

3.3 Training on the process of buying and selling land

The second type of property rights disputes observed in court in [Aberra and Chemin \(2021\)](#) related to the process of buying and selling land.

Once again, the formal process of buying and selling land is not overly complex but must be respected for a valid transfer to take place. It involves many steps: (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) the buyer paying the stamp duty and transfer fees; and (9) obtaining another search certificate a week after the transfer to ensure the buyer is now the legal owner.

None of these steps are particularly difficult, yet we encountered numerous disputes in court because some of these steps had been skipped over, meaning that the land had not been transferred properly. This created issues when the rightful buyer of the land had their land taken away or experienced a boundary dispute.

A training on the process of buying and selling property was designed by the team of Kenyan lawyers and paralegals and explained all the steps and procedures to follow in order to undertake a proper process of buying or selling land. The exact content of the intervention is available in its entirety in [Supplementary Appendix Q](#). Respondents were left with an information booklet summarizing the main points of the training. We refer to this as the buy/sell intervention.

3.4 Training on writing wills

Not every household was interested in training on the process of succession or training on the process of buying or selling land, if they were not currently engaged in such events. We thus designed another intervention for those who were interested; how to properly write wills.

Few families in Central Kenya proceed with a formal, legally recognized succession process. When landowners die, it is unlikely that they have formally expressed their wishes for the estate's distribution. This unsurprisingly leads to disputes among family members concerning who was promised which exact parcel of land from the deceased party. Such a situation does not bode well for strong property rights.

Our team of Kenyan lawyers and paralegals thus designed a training program on wills. It explained the benefits of writing a will and answered many questions on how to write a legally valid will.⁶ Respondents were left with an information booklet summarizing the main points of the presentation, as well as a blank copy of an official will. The exact content of the intervention is available in its entirety in [Supplementary Appendix Q](#). We refer to this as the will intervention.

The hypothesis is that writing wills will clarify property rights and increase the incentives to invest for future beneficiaries who are already tending to a portion of their parents' land.

3.5 Group training

Finally, together with the team of Kenyan lawyers and paralegals, we decided to implement an intervention for maximum impact.

We combined the three trainings (succession, buy/sell, and wills) into one, and decided to deliver the training to groups instead of individuals as was done in the other interventions. [Chemin \(2016\)](#) 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 inform or convince others to change behavior.

A natural avenue to organize group meetings is to use the informal groups that already exist in most developing countries. It is common practice for individuals in developing countries to be members of tight-knit informal groups (e.g., family groups, church groups, clans, mutual aid societies, or ROTating Savings and Credit Associations). [Chemin \(2016\)](#) documents that 89% of the households in Kirinyaga County belong to at least one such group. These groups provide social and spiritual support, as well as credit and savings opportunities. They are also very well organized: group members usually pay a registration fee, a yearly membership fee, contribute savings, and receive dividends from loan repayments by others. There is an intricate system of fines for lateness, absences, and a lack of contributions. These meetings are thus well-attended, by a stable group of individuals, at regular places and times.

Our intervention exploits these features; we organized the training at the regular time and places of these meetings to maximize attendance.

To find groups, we focused on another geographical area which had not received any other legal training interventions described above. The rural community in Kenya is very homogeneous and all geographic areas are rather similar, we show later that all treatment and control groups are very similar at baseline. We then visited the local leaders such as chiefs to establish a list of such groups in the area.

We found that these groups were overwhelmingly women's groups, as is evident from the names of the groups.⁷ Considering this, the team of lawyers decided to add a specific training on women's rights. The reasons for adding this training are the following. Women are key contributors to household labor supply.⁸ Yet, women faced discriminated in Kenya; prior to The Law of Succession Act (passed in 1981), the constitution recognized the application of customary law. According to customary law, virtually all ethnic groups did not allow women

⁶ For example: Can women write wills? (Answer: Yes); How many witness are need for a valid will? (Answer: 2); Who is the best person to help draft a will? (Answer: A lawyer); Can a will be contested if one descendant is excluded? (Answer: Yes).

⁷ The full list is: Kathata self help group, Kathata water project, Welfare Merry Go Round, Kagumo welfare group, Kinyukia women group, Kagaa women group, Urumwe women group, Clan group, Urumandi nduma women group, Wendani wa athuri na atumia, Njoga wendani women group, Welfare group, Mwiboti women group, Thayu wakanjuu women group, Marikini women group, Namukinye women group, Kimuri women group, and Munyu wamongo women group.

⁸ For example, in our sample, the total number of days worked on plots of land per month is 19.6, 50% of which is supplied by the household head and 36% by the spouse of the household head.

to inherit land from their parents or their deceased husbands (Harari 2019). This situation has changed in Kenya, at least on paper, with the passage of progressive laws. These laws may have not been fully understood by the general population: disseminating information related to women's rights may thus directly translate into increased agricultural productivity.

Specifically, the women's training explained the current legal framework guaranteeing women's equal rights to land. For example, the Constitution of Kenya (implemented in 2010) states explicitly that women and men have the right to equal treatment before the law (Article 27), and specifically in regards to property rights (Articles 40 and 60). The National Land Policy (implemented in 2009) aims to improve gender equity in land use, management, and ownership. The Land Registration Act (2012) grants spouses a legal interest in land held in one spouse's name where the other spouse has contributed to it through his or her labor. The Act also requires spousal consent for the disposition of any land. The Marriage Act (2014) states that married women have the same property rights as married men. The Matrimonial Property Act (2013) stipulates that a married woman has the same rights as a married man to acquire, administer, hold, control, use, and dispose of property whether movable or immovable. The Law of Succession Act (1981) guarantees a portion of the estate to the widow. [Supplementary Appendix Q](#) describes the entire content of the training.

We refer to this as the Group Training intervention. To summarize, it differs from the individual interventions listed above in three key respects:

- The group training combines the three interventions described above (succession, buy/sell, and wills) and adds the training on women's rights.
- The training programs are delivered in a group setting, as opposed to individually, which fosters group discussions.
- These groups are mostly women's groups (we made an effort to survey women when visiting the households for data collection, we adjust for this in our regressions by presenting results with or without restricting the sample to women respondents only).

If we find an effect of these Group Trainings, we will not be able to pinpoint which of these three features drives the results. Our more modest goal here was to design an intervention with a maximum chance of success.

4. EXPERIMENTAL DESIGN

Not every household wanted a training session on succession, buy/sell, or wills. To tailor the training to the participants' particular circumstances, we adopted a "cascading" experimental design. We first randomly selected "locations," small geographic units below the sub-county level, sharing the same chief and council of elders (the same alternative dispute resolution mechanisms), and then visited all households door-to-door within a given location.

We first asked whether the household was involved in an on-going land conflict. These households entered the pool of participants for another intervention offering legal representation in court (Aberra and Chemin 2021). [Figure 1](#) shows that 342 households fell into this category.

For all households not involved in a land conflict, we asked whether they needed a "search certificate," proof of their ownership of land. Notice the small sample size ($N = 58$): as explained above, this experiment was quickly discontinued due to the inability of most participants to provide us with their plot number.

We then asked participants whether they were going through the process of succession. This was the case for $N = 144$ households. These participants became eligible for the

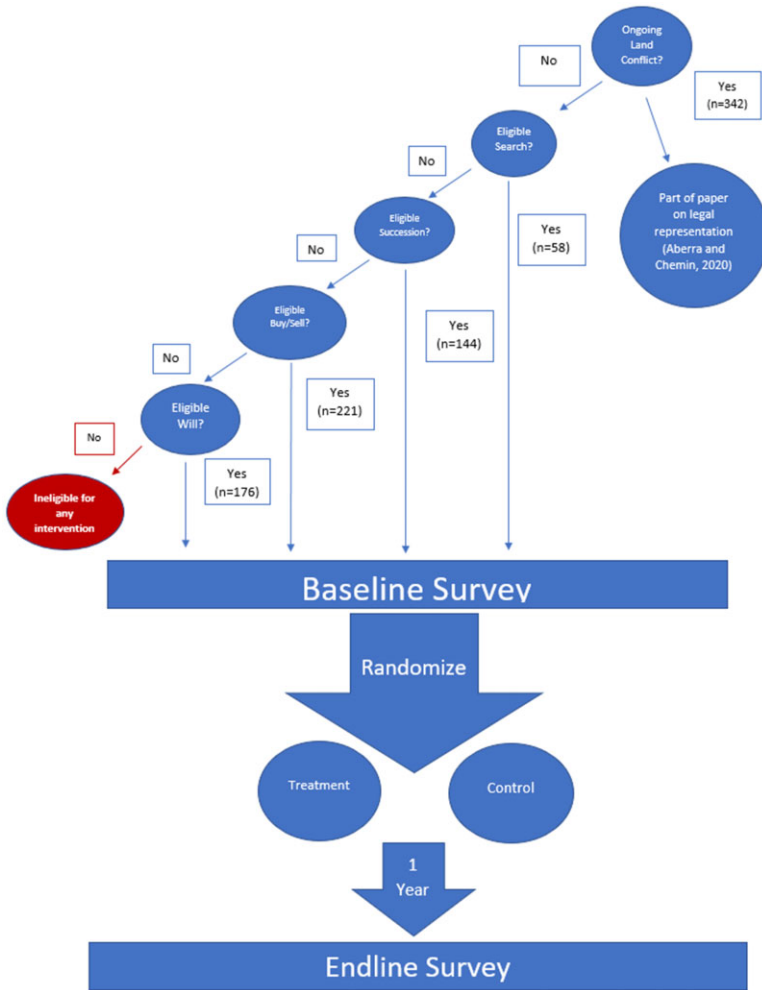


Figure 1. Recruitment of participants.

succession training. Fieldworkers first collected a baseline household survey. We then randomly selected half of this sample to receive the training. One to two weeks later, paralegals visited the treatment group to deliver the training. One year after the training, the fieldworkers resurveyed the entire sample.

For participants not going through a process of succession, we asked whether they were currently involved in the buying or selling of land (this was the case for $N = 221$ households). We followed a similar procedure as above (collect a baseline survey, randomize roughly half into treatment, deliver the training to the treatment group, and collect the endline survey a year later).

For participants not currently involved in the buying or selling of land, we asked whether they had not yet written a will ($N = 176$), and followed the same procedure.

Very few people ($N = 20$) turned out to be ineligible for any intervention, mainly because of the wording of our last question: “Have you written a will before?” Since few respondents had written a will, most were eligible for this intervention.

We followed this particular order for the interventions (search certificate, succession, buy/sell, wills) since we expected stronger effects in that descending order. First, the search certificate intervention seemed like a particularly inexpensive and immediate way to confirm property rights (unfortunately, it failed). Succession was highlighted as the greatest source of property rights disputes in [Aberra and Chemin \(2021\)](#). We expected immediate effects of explaining the succession process to people currently engaged in a succession process. The buy/sell intervention is slightly different in the sense that it may only pay off when a conflict occurs on the land, which may happen at an uncertain future time. Writing a will will only pay off at the later and unknown time of a death in the family. The effects of these last interventions (buy/sell and wills) may thus take longer to materialize.

The intake procedure used to determine eligibility (explained in [Figure 1](#)) resulted in a total sample of 961 households.

Concerning the group trainings, we focused on another “location” which had not received any other legal interventions. Fieldworkers visited local leaders (chiefs and elders) to establish a list of 19 informal groups and their leaders in the community. Out of this list, we randomly selected nine to be visited, which represented a total of 144 individuals. Fieldworkers then obtained approval from group leaders to visit their group. They visited each group at their regular meeting time and place, collected the names and contact information of all group members, and visited people in their homes to collect the baseline survey. The paralegals delivered the training at the next meeting.

One issue with the control group of 10 informal groups in this same “location” is potential spillovers from the treated groups. People usually belong to multiple informal groups.⁹ Thus, some individuals in a control group of the same “location” are bound to receive the treatment. In a similar experimental design in [Chemin \(2016\)](#) where we organized group meetings in a certain location (a location is a very small administrative region in Kenya, the third level subdivision below counties and sub-counties, at the 1999 census there were 2427 locations in Kenya), we found that 46% of the control group of that location had received a group presentation. This is not an ideal control group since most respondents may have received the treatment. In contrast, in a control group in another location, only 15% had received the group training, which is logical since they live in a slightly different area. We also found that all groups (the treatment group, the control group in the same location, and the control group in the other location) were well balanced on a wide set of covariates (i.e., people were similar before the intervention and there were no significant differences across these locations). Using a control group from another location is thus preferable: there are no significant differences (which we test for below) and it precludes spillover effects.

Another issue we encountered in practice with the control group of these 10 informal groups is that the group leaders did not agree to have us use their regular meetings to collect data on their members without delivering any training. We did not have this issue in the treatment group since group leaders appreciated the legal training provided and agreed that we would collect data on their members.

Considering these two issues (positive spillovers and refusal to participate), in this article, we use the three control groups of the individual interventions (succession, buy/sell, and will). The advantage of these control groups is that they were collected in a different location than the Group Trainings, such that spillovers from those trainings are unlikely.

⁹ For example, we found in [Chemin \(2016\)](#) that the 1803 households in our survey participated in a total of 2995 groups.

All these groups are well balanced with the Group Training treatment group, on a wide set of covariates as shown below. Moreover, we find the same results no matter which control group is used.

Table 1 displays the balance tests, reporting the normalized differences for observable characteristics between the treatment and control groups of each intervention. This measure divides the difference in group means by the square root of the sum of group variances, providing a scale-invariant statistic on the size differences between any two groups (Imbens and Wooldridge 2009). The participants were small-scale farmers. The overwhelming majority of our sample were cultivating one plot of land (74%) and living near the poverty line of \$2 a day per capita.¹⁰ Table 1 shows the basic characteristics of our respondents. Household heads had an average of just under 9 years of education, and between 42% and 52% (depending on the intervention) went to high school.

Columns (1) and (2) show the average characteristics of the control and treatment groups for the succession intervention. The average age was 46.5 years old in the control group and 48.6 years old in the treatment group. These figures are quite similar and not statistically different as indicated by the *p*-values in parentheses in Column (3). This indicates that the treatment and control groups for this intervention are well balanced at baseline. Similarly, the rest of the table show no significant differences in gender, education, high school attendance, agricultural production, and number of plots.

The rest of the table shows the balance test for the buy/sell, will, and Group Training interventions (using as a comparison the control group of the succession intervention). None of these variables differ markedly across treatment and control groups at baseline.

In the Supplementary Appendix, we show the balance of the outcomes, such as legal knowledge and property rights in Supplementary Appendix Table A1. All these variables are well balanced, the only exception is for the Group Training intervention, which seems to have more knowledge for three of the eight questions of the legal knowledge questionnaire, those related to writing wills (Number of witness for valid will? Can a will be contested if it excludes a child? Can women write wills?). We adjust for these imbalances by using an ANCOVA specification, which controls for the baseline level of the outcome considered. One should nonetheless exercise caution when interpreting the treatment effect of the group trainings on these three questions related to writing wills. We build an index of legal knowledge based on the eight questions. Table 1 shows that it is not well balanced at baseline, because of these three problematic questions. When we build another index of legal knowledge excluding these three problematic questions, the index of legal knowledge is well balanced, as shown in Table 1.

Concerning property rights, there is good balance for the variables we use (described in greater detail later). When we build an index aggregating them into one, it is well balanced, as shown in Table 1.

Supplementary Appendix Table A2 reports the balance test for the 16 investment variables we use (which will also be described later in greater detail). When taken individually, few of these investment variables are not well balanced for the Group Trainings intervention, with some differences being positive and other negative. When we aggregate all these variables into a single index, it is well balanced at baseline, as shown in Table 1. In our econometric analysis below, we provide a test controlling for all the variables unbalanced at baseline and the results are the same. Moreover, we report in Supplementary Appendix Tables A3 and A4 the balance test between the Group Trainings interventions and the buy/sell and wills

¹⁰ All values are in USD PPP.

Table 1. Balance of observable characteristics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Succession			Buying and selling			Will			Group Training		
	Control	Treatment	Diff (<i>p</i> -val)	Control	Treatment	Diff (<i>p</i> -val)	Control	Treatment	Diff (<i>p</i> -val)	Control	Treatment	Diff (<i>p</i> -val)
Age of household head	46.46	48.56	-0.12 (0.36)	46.65	47.70	-0.06 (0.57)	49.83	50.48	-0.03 (0.78)	46.46	50.02	-0.20*** (0.06)
Male household head	0.76	0.84	-0.14 (0.23)	0.89	0.79	0.19** (0.04)	0.84	0.79	0.08 (0.44)	0.76	0.75	0.01 (0.92)
Years of schooling for HHH	8.74	8.97	-0.05 (0.69)	8.94	8.87	0.01 (0.89)	8.65	8.29	0.07 (0.52)	8.74	8.80	-0.01 (0.90)
Some high school for HHH	0.43	0.51	-0.11 (0.34)	0.49	0.46	0.04 (0.66)	0.47	0.42	0.07 (0.52)	0.43	0.52	-0.13 (0.19)
Daily farm output (USD PPP) per capita	2.99	4.09	-0.11 (0.35)	2.71	2.77	-0.01 (0.94)	5.32	3.07	0.15 (0.17)	2.99	3.06	-0.01 (0.90)
Number of plots	1.07	1.14	-0.15 (0.21)	1.17	1.07	0.21** (0.03)	1.13	1.18	-0.08 (0.48)	1.07	1.12	-0.11 (0.28)
Total knowledge	5.01	5.29	-0.13 (0.27)	5.12	5.09	0.02 (0.86)	5.06	5.00	0.03 (0.79)	5.01	5.74	-0.35*** (0.00)
Total knowledge (excluding the 3s questions on wills)	3.27	3.52	-0.17 (0.16)	3.42	3.39	0.02 (0.84)	3.32	3.20	0.08 (0.48)	3.27	3.32	-0.04 (0.71)
Total rights without approval	1.25	1.25	0.00 (1.00)	1.05	1.22	-0.09 (0.38)	1.44	1.51	-0.04 (0.75)	1.25	1.21	0.02 (0.86)
Investment index	0.00	2.05	-0.17 (0.14)	1.76	0.69	0.09 (0.33)	0.60	0.34	0.11 (0.31)	0.00	1.19	-0.15 (0.20)
	Joint tests of significance											
(<i>p</i> -val) (using original knowledge index)												
(<i>p</i> -val) (using knowledge index minus three questions)												

Notes: *P*-values in parentheses. Column (12) displays the normalized differences between the group training treatment arm and control group of the succession intervention. HHH: household head. The first row of *p*-values corresponds to joint tests of significance for each of the treatment indicators on the nine baseline variables. The second row corresponds to joint tests of significance for each of the treatment indicators on the nine baseline variables, this time substituting the total knowledge index with an abridged index that excludes three questions that are unbalanced at baseline (see [Supplementary Appendix Table A1](#)).

***, significant at 99% confidence level; **, significant at 95% confidence level; *, significant at 90%.

control group and find few significant differences with the buy/sell control group in particular. Thus, when looking at the investment outcomes, it will be especially appropriate to look at the comparison with the buy/sell control group. A preview of the findings is that we find very similar results no matter what the control group is.

The last line of [Table 1](#) presents a joint test of significance of all the variables in the table. None of the p -values are significant, with or without the three problematic questions on legal knowledge of wills.

Overall, these balance tests confirm that the treatment and control groups are well balanced along observable characteristics.

5. METHODOLOGY

We use a simple ANCOVA specification following [McKenzie \(2012\)](#):

$$\begin{aligned}
 Y_{post} = & \beta_0 + \beta_1 Y_{pre} + \beta_2 \text{TreatSUC}_i \\
 & + \beta_3 \text{TreatBS}_i + \beta_4 \text{SampleBS}_i \\
 & + \beta_5 \text{TreatWILL}_i + \beta_6 \text{SampleWILL}_i \\
 & + \beta_7 \text{TreatGT}_i \\
 & + \gamma \mathbf{X}_i + \epsilon_i
 \end{aligned} \tag{1}$$

Here, Y_{post} and Y_{pre} denote the respective outcomes (legal knowledge, property rights, investment) at endline and baseline.

In this specification, the omitted category is the control group of the succession intervention. TreatSUC_i is a dummy variable equal to 1 if the household received the succession training intervention, 0 otherwise. The coefficient β_2 is thus the coefficient of interest, and measures the impact of receiving the succession intervention on the outcome.

TreatBS_i is a dummy variable equal to 1 if the household received the buy/sell intervention, 0 otherwise. Notice the inclusion of the variable SampleBS_i , equal to 1 for all households eligible to receive this intervention (i.e., both the treatment and control group of this intervention, hence called SampleBS_i since it corresponds to the sample of households eligible for this intervention), 0 otherwise. This variable captures all the factors specific to households in this sample, which may be different from other households since the defining feature of this sample is that they are engaged in the process of buying or selling land. These households may differ from others, for observed or unobserved reasons, which are all captured by the coefficient β_4 . The coefficient of interest is β_3 , which is the treatment effect of the buy/sell treatment, over and above the mere fact of being eligible for the intervention. This coefficient measures the increase in the outcome due to the treatment, conditional on being eligible for the treatment.

The results are similar if we were to estimate the effect of the buy/sell or will interventions in separate regressions, by simply comparing the treatment group to that control group of that intervention (as shown in a robustness check below). The advantage of Specification (1) is to estimate the effect of all interventions in a single regression. This specification simultaneously adjusts for the sample selection bias inherent in being eligible for the buy/sell intervention (with the variable SampleBS_i), and identifies the causal impact of the buy/sell treatment (with the variable TreatBS_i).

TreatWILL_i and SampleWILL_i are defined similarly. TreatWILL_i is a dummy variable equal to 1 if the household received the will training intervention, 0 otherwise. SampleWILL_i is a dummy equal to 1 for all households eligible to receive this intervention (i.e., both

the treatment and control group of this intervention). The coefficient of interest is β_s , which represents the effect of the treatment versus the control group for that intervention.

Last, TreatGT_i is a dummy variable equal to 1 if the household received the Group Training intervention, 0 otherwise. As explained above, the control group of the succession intervention (the omitted category in this specification) is an appropriate control group since (1) they followed the same selection rule for inclusion, (2) they are unlikely to have been affected by positive spillovers from these meetings, and (3) they share similar observable characteristics with the treatment group as shown in [Table 1](#). In robustness checks below, we use other control groups as the omitted reference category and confirm that the results remain the same.

X_i is a vector of four control variables measured at baseline: age of the respondent, a gender dummy taking a value of 1 if the household head is male, household head's years of schooling, and the number of plots belonging to the respondent's household. For each of these four covariates, we replace missing values with 0 and include a dummy that the observation is missing. We do this in order to keep all the observations in the sample.

Controlling for these four basic socio-demographic variables is important since [Table 1](#) shows that the treatment group of the succession intervention is slightly older, more male-headed household, less educated, and with fewer plots (although reassuringly, none of these differences are significant). Still, it may be that these households respond less to the treatment and our estimates could be biased downward. In [Supplementary Appendix Table H1](#), we present results using the same specification without controls; the estimates are very similar.¹¹

Standard errors are robust, clustered at the level of locations. The sample of participants was collected by randomly selecting administrative subdivisions called "locations,"¹² situated around our offices in Kirinyaga County, and systematically visiting all of its inhabitants door-to-door. In that case, [Abadie et al. \(2023\)](#) recommend clustering at this level. Moreover, clustering at the location level addresses the fact that the residuals of outcomes such as the security of property rights and investment may be correlated within locations, since each location shares common informal dispute resolution mechanism (i.e., the same chief and council of elders). As shown below in a robustness check, the results are similar with or without clustering.

We obtained ethical approval to undertake this research¹³ and filed a pre-analysis plan.¹⁴

6. RESULTS

Before we turn to the regression results, we show answers to the question: "On a scale of one to five, where one means extremely unhelpful and five means extremely helpful, how would you rate the training's impact on your household?" This question was only asked to participants of the various treatment groups. For the succession intervention, [Figure 2](#) shows that a large fraction of participants answered helpful and even "extremely helpful." The results are less striking for the buy/sell intervention, with a higher proportion of neutral evaluations, a point to keep in mind when comparing the relative effectiveness of the

¹¹ We also control for TreatLR_i , a dummy variable for the legal representation intervention which was the focus of [Aberra and Chemin \(2021\)](#) and SampleLR_i , a dummy for being eligible for this intervention (i.e., having an on-going conflict), such that any differences caused by this intervention are captured by these two variables. Our results in this article are thus not affected by this other intervention.

¹² Locations are the third level administrative subdivision in Kenya (below counties and sub-counties). Locations often, but not necessarily, coincide with electoral wards. Each location has a chief, appointed by the county and a council of elders.

¹³ REB File #: 274-1213.

¹⁴ AEARCTR-0001293, this is the same pre-analysis plan as for [Aberra and Chemin \(2021\)](#).

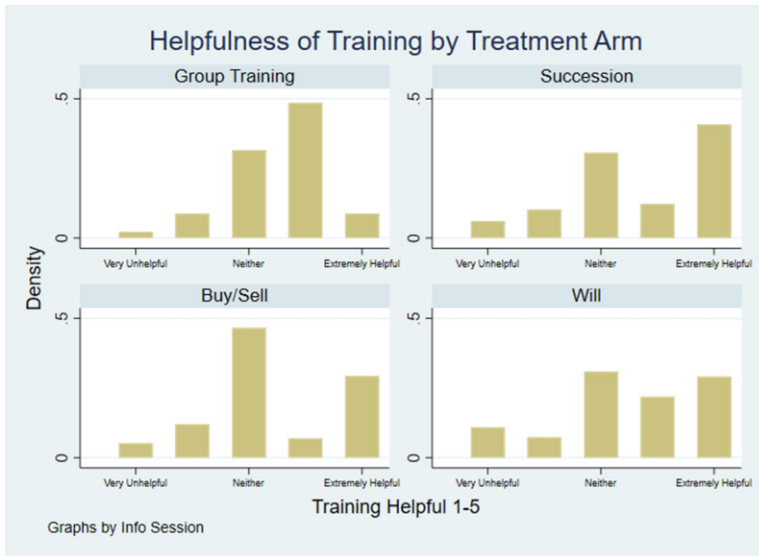


Figure 2. Self-reported helpfulness of information sessions.

interventions in the following sections. The will training is also helpful, as well as the Group Training programs.

6.1 Effects on legal knowledge

We first verify that the trainings programs increased legal knowledge by asking eight questions on the content of the sessions. We first ask the name of the institution in charge of approving transfers of land, the correct answer being the “Lands Office.” This is important since all land transfers, either through succession or sales must be approved and stamped by this institution. Transactions that leave out this step limit the ability of the plot’s new owner to prove valid ownership in the event of a future land conflict. In Column (1) of Table 2, we define a dichotomous variable equal to 1 if the individual answered the correct answer (the “Lands Office”), 0 otherwise. Only 19% of the control group at baseline knew the correct answer. The fact that the Lands Office is the institution in charge of approving transfers was explained in the succession, buy/sell, and Group Training interventions. We find that these three interventions increase the likelihood of correctly answering this question by 4, 14, and 26 percentage points, respectively. The insignificant impact of the will treatment is to be expected since this piece of information was not part of this information session.

We next ask other questions on the process of succession: in Column (2), “If no will is left by a deceased landowner, are all children of the deceased entitled to an equal share of the remaining land?” (the correct answer is yes according to the 1981 Kenyan Law of Succession, which runs counter to tradition in many agricultural African settings where the first-born son receives the largest portion and daughters are frequently given no land at all [Kuenyehia 2006]); and in Column (3), “What is the name of the certificate that proves ownership of a land parcel?” (the correct answer is a title deed). A very high proportion of the control group at baseline knew the correct answers to these questions (respectively, 97% and 94%). We find a small effect of the succession intervention in Column (2) but no discernible effect in Column (3), possibly because of a “ceiling effect”: there may be little room left for improvement.

Table 2. Impact of legal info sessions on legal knowledge.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Name institution for approving transfers	Equal share if no will?	Certificate that proves ownership	Sell land in trust?	Women can write wills?	No. witnesses for valid will	Who can draft will?	Contest will if excluded?
Succession	0.04*** (0.01)	0.02*** (0.00)	-0.01 (0.05)	-0.01 (0.06)	-0.04 (0.07)	0.01 (0.13)	-0.01 (0.02)	-0.06 (0.05)
Buy/sell	0.14** (0.05)	0.01 (0.01)	0.01 (0.04)	0.05 (0.03)	0.00 (0.03)	0.14** (0.05)	0.08 (0.04)	0.04 (0.02)
Will	0.18 (0.09)	0.04 (0.03)	0.01 (0.03)	-0.01 (0.11)	-0.07 (0.07)	0.14** (0.04)	0.03 (0.04)	0.00 (0.06)
Group Training	0.26*** (0.04)	0.01 (0.01)	0.04** (0.02)	0.04 (0.06)	0.08 (0.04)	0.06 (0.09)	0.06*** (0.01)	0.03 (0.03)
Control mean (sd)	0.19 (0.40)	0.97 (0.18)	0.94 (0.25)	0.69 (0.47)	0.87 (0.34)	0.24 (0.43)	0.58 (0.50)	0.90 (0.30)
<i>n</i>	912	912	912	912	912	912	912	912

Notes: In Column (1), the outcome is a dichotomous variable equal to 1 if the individual provided the correct answer (i.e., lands office), 0 otherwise to the question "From what government institution do you need approval to be able to transfer agricultural land?" In Column (2), the outcome is a dichotomous variable equal to 1 if the individual provided the correct answer (i.e., yes), 0 otherwise to the question "If no will is left by a deceased landowner, are all children of the deceased entitled to an equal share of the remaining land?" In Column (3), the outcome is a dichotomous variable equal to 1 if the individual provided the correct answer (i.e., search certificate), 0 otherwise to the question "What is the name of the certificate that proves ownership of a land parcel?" In Column (4), the outcome is a dichotomous variable equal to 1 if the individual provided the correct answer (i.e., no), 0 otherwise to the question "Can an individual sell land that they are holding in trust for someone else?" In Column (5), the outcome is a dichotomous variable equal to 1 if the individual provided the correct answer (i.e., yes), 0 otherwise to the question, "Are women allowed to write wills?" In Column (6), the outcome is a dichotomous variable equal to 1 if the individual provided the correct answer (i.e., two), 0 otherwise to the question "At least how many witnesses are required to sign a will to make it valid?" In Column (7), the outcome is a dichotomous variable equal to 1 if the individual provided the correct answer (i.e., lawyer), 0 otherwise to the question, "Who is the best person to help draft and sign a land sale agreement as a witness?" In Column (8), the outcome is a dichotomous variable equal to 1 if the individual provided the correct answer (i.e., two), 0 otherwise to the question, "Can a parent's will be contested if it completely excludes one of the parent's children? The specification includes the following baseline control variables measured at baseline: age of the respondent, a gender dummy taking a value of 1 if the household head is male, household head's years of schooling, and number of plots belonging to the respondent's household. For each of these four controls, we replace missing values with 0 and include a dummy that the observation is missing. Robust standard errors are clustered at location level. ***, significant at 99% confidence level; **, significant at 95%; *, significant at 90%.

In Column (4), we ask whether an individual can sell land that they are holding in trust for someone else (the correct answer being No). For children who have not yet reached the age of majority, the land can be temporarily held by a trustee (usually an adult family member). The buy/sell treatment emphasized the fact that trustees cannot sell land being held in someone else's name. We find that this intervention increases knowledge of this fact, albeit not significantly. The other interventions that do no mention this have no effect, as expected.

Starting in Column (5), we ask technical questions related to wills (in Column (5), if women can write wills; the correct answer is Yes, in Column (6), the number of witnesses needed for a valid will, correct answer is 2; in Column (7), who is best suited to draft a will; the correct answer is a lawyer; and in Column (8), whether a parent's will can be contested if it completely excludes one of the parent's children; the correct answer is Yes). The will and Group Trainings increase the number of correct answers (significantly so in Columns (6) and (7), respectively), as expected. However, recall that these three variables on wills are not

balanced at baseline for the Group Trainings intervention, thus these results have to be taken with caution.¹⁵

Overall, we find that the interventions improve legal knowledge in Table 3. We add these variables together to build an index that ranges between 0 (all answers wrong) and 8 (all answers right). The results are very similar when we exclude the three problematic questions on wills, as shown in Supplementary Appendix Table B1.

Column (1) shows that the buy/sell, will, and Group Training interventions have a positive impact on respondent's legal knowledge. For example, the Group Training intervention increases legal knowledge by 0.55 out of 8, an 8% increase over the average score in the control group (5.4 out of 8). This is a large effect considering the standard deviation is 1.05 in the control group, hence an effect size of $(0.55/1.05)$ 0.52 standard deviations.

The succession intervention has no effect on the overall index of legal knowledge, however this is to be expected since the succession intervention was only on one topic (succession), not on the other topics of buying/selling land, and writing wills. Therefore, the succession intervention should only affect some of the variables of the overall index of legal knowledge, not all of them. This is exactly what we find in Table 2: the succession intervention has an effect in Columns (1) and (2), which directly relate to the training content, but not in the other columns which relate to the process of buying/selling land and the technicalities of writing wills which were not part of the succession intervention. Therefore, we can conclude that the succession intervention also increases legal knowledge, but only the legal knowledge taught in that specific training, not on anything else, which is to be expected.

The effect of the Group Trainings interventions is not due to the choice of the control group of the succession intervention as the omitted category. In Column (1), the omitted category is the control group succession. The Group Trainings is thus compared with that control group. In Column (2), the omitted category is now the control group of the buy/sell intervention. The Group Trainings is thus compared with that control group. Notice that the succession, buy/sell, and wills interventions are still compared with their own control group, the only change is the omitted category, which becomes the comparison group for the Group Trainings intervention. Column (2) shows the exact same result for the Group Trainings intervention, that is, a large positive effect. Thus, the result continues to hold if we compare the Group Trainings intervention to the control group of the buy/sell intervention. In Column (3), the omitted category is now the control group of the will intervention. The result is the same, that is, a large positive effect for the Group Trainings intervention compared with the control group of the buy/sell intervention.

These results are important because they show the same effect for the Group Trainings no matter the control group. There is good balance between the Group Trainings and all these control groups of the succession, buy/sell, and wills interventions, and the results are the same.

Moreover, the effect of the Group Training interventions is not due to the overrepresentation of women in the Group Training. Recall that we made a conscious effort to survey women after the Group Trainings, since these groups are mostly women's groups. We were successful in that regard, as 96% of the respondents were female. This contrasts

¹⁵ There were two additional questions in our legal knowledge section which we exclude for this analysis. The first one was: "Where can you acquire a Green Card for a plot of land?" This question was specifically designed for the "Search Certificate" intervention that consisted in helping people obtain a Green Card. Since that intervention was canceled, we omit this variable from the analysis. Second, we asked the following question: "How long does a squatter have to be living on a plot he/she doesn't own to be able to claim adverse possession?" This question was not part of any training and is mostly unknown to those outside the legal profession. The correct answer is 12 years. This question refers to the complex notion in Kenyan law of "adverse possession," and was designed as a hard test of legal knowledge. In fact, only 5% of our respondents knew the correct answer at endline. Since it was not part of any training, we omit this variable from the analysis.

Table 3. Impact of interventions on legal knowledge.

	(1)	(2)	(3)	(4)
	Control group for Group Training:			Female Respondent
	Succession	Buy/sell	Will	
Succession	−0.07 (0.15)	−0.07 (0.15)	−0.07 (0.15)	−0.01 (0.29)
Buy/sell	0.48*** (0.08)	0.48*** (0.08)	0.48*** (0.08)	0.37** (0.14)
Will	0.35** (0.11)	0.35** (0.11)	0.35** (0.11)	0.49** (0.19)
Group Training	0.55*** (0.13)	0.57*** (0.13)	0.77*** (0.11)	0.74*** (0.14)
Control mean (sd)	5.39 (1.05)	5.39 (1.20)	5.15 (1.30)	5.18 (1.04)
<i>n</i>	912	912	912	563

Notes: The dependent variable in all four columns is the respondent's legal knowledge, measured by an index of eight questions (the individual results of which are further explain in Table 3). In Column (1), the omitted category is the control group Succession. The Group Trainings is thus compared with that control group. In Column (2), the omitted category is now the control group of the Buy/sell intervention. The Group Trainings is thus compared with that control group. The succession, buy/sell, and wills interventions are still compared with their own control group, the only change is the omitted category, which becomes the comparison group for the Group Trainings intervention. In Column (3), the omitted category is now the control group of the will intervention. Column (4) restricts the sample to only female respondents ($n = 563$) with the control group of the Succession intervention as the omitted category. Robust standard errors are clustered at the location level. The "control mean" is the mean of the control group of the omitted category. It is the mean of the succession control group in Column (1), the mean of the buy/sell control group in Column (2), and the mean of the will control group in Column (3), and the mean of the succession control group restricted to females in Column (4). Refer to the notes in Table 2 for a description of the control variables used in the specification.

***, significant at 99% confidence level; **, significant at 95%; *, significant at 90%.

with the control group of the succession training, where 61% of the respondents are female. To adjust for this imbalance, we restrict the sample to women respondents in Column (4): the effect is similar and, if anything larger. Thus, we continue to find a positive effect of the Group Training intervention within the sample of female respondents.

6.2 Effects on property rights

The previous section showed that participants appreciated the interventions and improved their legal knowledge. We now verify whether this increased knowledge of one's rights translates into greater security of property rights and ownership of the land.

To measure property rights, we follow Besley (1995) and ask each respondent whether they have the right, with or without family approval, to (1) cultivate, (2) take out loans on, (3) rent, (4) sell, (5) leave to a dependent, or (6) gift their primary plot of land. These questions measure the extent to which an individual is free to dispose of their plot at their own discretion, with or without requiring the family's approval. This adequately captures the essence of individual property rights (versus a more communal definition), especially for those questions relating to rights without the family's approval. These questions are important since communal property rights can suppress investment and lead to an inefficient allocation of resources (Besley 1995). The responses to each of the questions were coded as binary variables where 1 is "Yes" and "No" is coded as 0. Refusals or instances where respondents did not recall the answer were coded as missing.¹⁶ We aggregate these six questions into a

¹⁶ In Supplementary Appendix Table O1, we show that the magnitude and significance of our estimates do not change when either (1) observations with missing responses or (2) respondents without plots of land are included in the sample are coded as 0.

Table 4. Impact of interventions on property rights.

	(1)	(2)	(3)	(4)
	Control group for Group Training:			Female Respondent
	Succession	Buy/sell	Will	
Succession	0.47** (0.15)	0.46** (0.14)	0.46** (0.15)	0.59 (0.36)
Buy/sell	-0.27 (0.25)	-0.26 (0.25)	-0.27 (0.25)	0.02 (0.10)
Will	-0.12 (0.12)	-0.12 (0.12)	-0.11 (0.12)	-0.09 (0.22)
Group Training	0.60*** (0.03)	0.37 (0.21)	0.36*** (0.04)	0.57** (0.15)
Control mean (sd)	1.13 (1.42)	1.31 (1.80)	1.45 (1.51)	1.04 (1.32)
<i>n</i>	771	771	771	476

Notes: The dependent variable aggregates six land rights without family approval into an index taking a value of 0–6. The components of this index are discussed further in Table 5. In Column (1), the omitted category is the control group succession. The Group Trainings is thus compared with that control group. In Column (2), the omitted category is now the control group of the buy/sell intervention. The Group Trainings is thus compared with that control group. The succession, buy/sell, and wills interventions are still compared with their own control group, the only change is the omitted category, which becomes the comparison group for the Group Trainings intervention. In Column (3), the omitted category is now the control group of the will intervention. Column (4) restricts that the sample to only female respondents with the control group of the succession intervention is the omitted category. Robust standard errors are clustered at the location level. The “Control mean” is the mean of the control group of the omitted category. It is the mean of the succession control group in Column (1), the mean of the buy/sell control group in Column (2), and the mean of the will control group in Column (3), and the mean of the succession control group restricted to females in Column (4). Refer to the notes in Table 2 for a description of the control variables used in the specification.

***, significant at 99% confidence level; **, significant at 95%; *, significant at 90%.

six-point index where a higher score indicates more rights. Table 4 shows the results for rights without family approval.

In Table 4, we find that both the succession and the Group Training expand the bundle of property rights. For example, in Column (1), the Group Training intervention increases the index by 0.60 points out of 6, a 53% increase over the average score in the control group (1.13 out of 6). This is a large effect considering a standard deviation of 1.42 in the control group, hence an effect size of $(0.60/1.42)$ 0.42 standard deviations.

The effect of the Group Training intervention is not due to the choice of the control group of the succession intervention as the omitted category. Columns (2) and (3) show that the effect is the same if we use the control group of the buy/sell or will trainings as the omitted category (albeit less significant in Column (2)). When we restrict the sample to female respondents in Column (4), the effect is similar. Thus, we continue to find a positive effect of the Group Training intervention within the sample of female respondents.

The effect of the succession training on property rights is easy to understand. At the time of the training, most participants were cultivating a plot, involved in a process of succession, but unsure of how to undertake a process of succession, and of what documents were required and which institutions to visit. The succession training explained the steps and procedures to follow to implement a proper succession process. Participants thus followed the steps and registered their property as their own (as will be shown in the next table on ownership), becoming more likely to state that they have the right to cultivate the plot.

This is exactly what we find in Column (1) of Table 5, where we unpack the property rights index into its components. Column (1) concerns the right to cultivate the plot without the family’s approval. The likelihood of people saying they have the right to cultivate their

Table 5. Impact of legal info sessions on property rights.

	(1)	(2)	(3)	(4)	(5)	(6)
	Right on plot					
	Cultivate	Take loans	Rent	Sell	Leave to dependent	Gift
Succession	0.09*** (0.01)	0.12* (0.05)	0.05* (0.02)	0.10*** (0.02)	0.06 (0.03)	0.05 (0.03)
Buy/sell	-0.10** (0.03)	-0.13* (0.05)	-0.08 (0.07)	0.04 (0.08)	0.01 (0.04)	-0.02 (0.06)
Will	-0.03 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.07 (0.05)	0.00 (0.02)
Group Trainings	0.10*** (0.01)	0.11*** (0.01)	0.07*** (0.01)	0.21*** (0.02)	0.04** (0.01)	0.07*** (0.01)
Control mean (sd)	0.04 (0.19)	0.11 (0.31)	0.07 (0.26)	0.65 (0.48)	0.15 (0.36)	0.11 (0.31)
<i>n</i>	776	776	776	775	774	774

Notes: Respondents are asked in Columns (1)–(6) whether they have the right to various actions on their main plot of land without family approval. Each question in Columns (1)–(6) is coded as either 0 (“no”) or 1 (“yes”). Robust standard errors are clustered at location level. Refer to the notes in Table 2 for a description of the control variables used in the specification. ***, significant at 99% confidence level; **, significant at 95%; *, significant at 90%.

plot without the family’s approval increases by 9 percentage points. Participants also reported having more rights to take loans on the plot or to sell it without the family’s approval. Overall, the succession training expands the bundles of property rights.

The fact that the Group Training has a similar effect as the succession intervention is also easy to understand since the succession intervention was one of its components.

The effects of the buy/sell and will interventions are much less pronounced. This may be because the effects of both these trainings take longer to materialize. Recall that the succession intervention is delivered to households currently involved in a process of succession. Thus, a better understanding of this process pays off immediately, in terms of greater security of property rights. The buy/sell intervention is delivered to households currently involved in a process of buying/selling land. Understanding more about the process and correctly transferring land will only pay off at a future time (e.g., when the land is resold or used as collateral for a loan). Thus, our time window of one year between the baseline and endline may not have been long enough to capture these effects.

Concerning the will intervention, recall that it was given to households not involved in a process of succession and not involved in a process of buying/selling land. For these individuals, writing a will now will only pay off at the uncertain future event of a succession. This intervention may thus have an effect in the long-run only.

One explanation for this greater security of property rights is that treated households have followed the steps provided in the intervention and have become the owner of their land. In Column (1) of Table 6, we ask respondents whether their main plot is owned either by the household head, the household head’s spouse, or owned jointly by both. The Group Training intervention is associated with a 24 percentage point increase in this variable. Therefore, people report owning more of their land. The result is the same when we ask about the mode of acquisition: more people report having inherited the land in Column (2) or bought the land in Column (3) (albeit not significant). In other words, people have followed up with the legal information on succession and buying/selling and went through the processes. Finally, in Column (4), we measure ownership in another way, by asking

Table 6. Impact on plot ownership.

	(1) Plot owned by HH owner	(2) Plot inherited	(3) Plot bought	(4) No rental (HH owner)
Succession	0.04 (0.04)	-0.01 (0.08)	0.01 (0.02)	0.08 (0.06)
Buy/sell	-0.04 (0.05)	-0.02 (0.06)	-0.01** (0.00)	0.00 (0.09)
Will	0.05 (0.10)	0.11 (0.09)	0.06 (0.03)	0.02 (0.12)
Group Trainings	0.23*** (0.01)	0.23*** (0.02)	0.01 (0.01)	0.31*** (0.03)
Control mean (sd)	0.29 (0.46)	0.29 (0.46)	0.02 (0.13)	0.18 (0.39)
<i>n</i>	781	781	781	781

Notes: Outcome (1) is binary variable equal to 1 if the respondent's main plot is owned either by the household head, the household head's spouse, or owned jointly by both, and 0 otherwise. Outcome (2) is a binary variable equal to 1 if the respondent's main plot was inherited, and 0 otherwise. Outcome (3) is a binary variable equal to 1 if the respondent's main plot was bought from someone, and 0 otherwise. Outcome (4) is a binary variable equal to 1 if, when asked if they rent their main plot, the respondent answered that they did not pay any rent since they owned it, and 0 otherwise. Refer to the notes in Table 2 for a description of the control variables used in the specification.

***, significant at 99% confidence level; **, significant at 95%; *, significant at 90%.

respondents whether they rent their main plot. The variable is equal to 1 when the respondent answered that they did not pay any rent since they owned it, and 0 otherwise. Once again, the Group Trainings intervention increases this variable significantly, showing that participants are more likely to own their land at endline. To be fully transparent, we had not specified these variables in the pre-analysis plan. To avoid cherry-picking, we analyze in this table all the variables purporting to ownership. Despite not being in the pre-analysis plan, we still present these results because they confirm that the greater security of property rights observed above is not just a false feeling of security provided by the intervention. Those who took part in the training actually went through the steps and registered their property as their own. The caveat with these variables is that they are self-reported measures since we do not have official data on land titles.

To ensure that the results are not driven by this particular measure of property rights, we report several alternate measures in the [Supplementary Appendix](#). First, we show in [Supplementary Appendix Table G4](#) that the results are largely the same when we measure property rights with family approval (instead of without, as is done in the table above). Next, we ask questions about feelings of safety in the homestead and find that the Group Training intervention is associated with greater safety, especially at night, outside and inside the homestead ([Supplementary Appendix Table G5](#)). Finally, [Supplementary Appendix Table G9](#) reports the effects of the trainings on several measures of well-being. We find that the Group Training intervention reduces stress, depression, worries, the respondent's belief that people will take advantage of them, and increases trust. These results are all consistent with the notion of more secure property rights on land. This could also be due to other factors such as the increase in social interaction in groups about these legal topics.

6.3 Effects on investment

In this section, we turn to the interventions' effects on investment. To do so, we ask 16 questions on the most common types of agricultural investments in the area. Some investments are long-run investments on the land, such as building a cow pen and grain storage rooms,

others relate specifically to investments in irrigation techniques (rainwater storage, piped water, etc.). Some also relate to investments in agricultural techniques (acres with mulching, crop rotation, etc.) which can serve to improve land productivity.

In [Supplementary Appendix C](#), we present the results for each of these 16 types of investment. In this section, we report the results pertaining to an index, constructed as follows. Since each variable has different units (the number of cow pens, liters of rainwater storage, acres watered by sprinkler, etc.), we thus standardize each variable by de-meaning and dividing it by its standard deviation in the control group of the succession treatment. By construction, each of these 16 standardized investment outcomes has a sample mean of 0 and standard deviation of 1 in the control group of the succession treatment. We then calculate an unweighted average of these 16 variables, and standardize by dividing the average by the succession intervention control group's standard deviation. As with its 16 components, this standardized index also has a mean of 0 and standard deviation of 1 for the control group of the succession sample.¹⁷

Column (1) of [Table 7](#) shows that the Group Trainings intervention increases this index by a statistically significant 0.32 standard deviations. The effect of the Group Training intervention is still statistically significant when other control groups are used, as shown in Columns (2) and (3) (albeit insignificant in Column (3)), as well as when restricting the sample to female respondents (Column (4)).

[Supplementary Appendix Table C1](#) shows that this result is driven especially by long-run investments on the land (building grain storage rooms, planting trees, and terracing the land), adopting new irrigation techniques (building water storage), as well as adopting new agricultural techniques (crop rotation and bucket planting).

The succession intervention has no effect on investment which can be explained by the fact that the succession intervention had much smaller effects than the Group Training on legal knowledge in [Table 3](#) and property rights in [Table 4](#). The weaker effect on property rights is apparent in [Table 5](#): fewer variables are significant and less so than for the Group Trainings intervention. This is to be expected since the succession intervention was only on one topic and it was delivered to individuals, not groups, which generated interesting discussion between group members. It is the combination of all trainings offered together in groups which generates the larger effect. The succession intervention does not generate as strong an effect and does not translate into greater investment.

The buy/sell and wills interventions also have no effect on investment, as well as no effect on property rights in [Table 4](#). One explanation is that these interventions will only pay off in the future, at the time of a dispute on the properly transferred land or at the time of a future succession, respectively. We also cannot discard the possibility that these trainings would have worked in other samples, such as in the succession sample of people engaged in a process of succession.

The response to the intervention might depend on who it is delivered to and what their priors are. For example, if those currently cultivating the land believe that they have full rights to it, but the intervention informs them otherwise, this might actually lower their expectations of being able to use the land in the future and thus reduce investment. This is exactly what we find in [Supplementary Appendix Table L1](#). We find a lower effect of the intervention for those who believe that they have the right to cultivate the land at baseline.

¹⁷ We winsorize this index at 5 standard deviation above the mean. As shown in [Supplementary Appendix C](#), our results are robust to other cutoffs.

Table 7. Impact of interventions on investment.

	(1)	(2)	(3)	(4)
	Control group for Group Training:			Female Respondent
	Succession	Buy/sell	Will	
Succession	-0.16 (0.15)	-0.24 (0.17)	-0.24 (0.20)	0.05 (0.20)
Buy/sell	-0.25** (0.08)	-0.20** (0.07)	-0.06 (0.12)	-0.34 (0.23)
Will	-0.01 (0.13)	0.04 (0.07)	0.09 (0.11)	-0.14 (0.18)
Group Trainings	0.32*** (0.06)	0.24*** (0.03)	0.19 (0.10)	0.42* (0.16)
Control mean (sd)	0 (1.00)	0 (1.00)	0 (1.00)	-0.06 (1.13)
<i>n</i>	912	912	912	563

Notes: The dependent variable aggregates 16 agricultural land improvements into an investment index standardized by the mean and standard deviation of control group (omitted category) which varies by column. The components of this index are discussed further in [Supplementary Appendix C](#). In Column (1), the omitted category is the control group succession. The Group Trainings is thus compared with that control group. In Column (2), the omitted category is now the control group of the buy/sell intervention. The Group Trainings is thus compared with that control group. The succession, buy/sell, and wills interventions are still compared with their own control group, the only change is the omitted category, which becomes the comparison group for the Group Trainings intervention. In Column (3), the omitted category is now the control group of the will intervention. Column (4) restricts the sample to only female respondents with the control group of the succession intervention as the omitted category. Robust standard errors are clustered at the location level. The "Control mean" is the mean of the control group of the omitted category. It is the mean of the succession control group in Column (1), the mean of the buy/sell control group in Column (2), and the mean of the will control group in Column (3), and the mean of the succession control group restricted to females in Column (4). Refer to the notes in [Table 2](#) for a description of the control variables used in the specification.

***, significant at 99% confidence level; **, significant at 95%; *, significant at 90%.

Column (2) explores the heterogeneous effects by gender. We find no increased responses of women, yet this may be due to the fact that most groups are females, there is therefore little variation in the gender of the treated individuals.

Overall, the Group Trainings intervention has the largest effect of all trainings, and an effect on legal knowledge in [Table 3](#), property rights in [Table 4](#), and investment in [Table 7](#). This is all the more remarkable given that the costs of this intervention are so low; total costs average out to a little over \$12 per treated individual, cheaper than offering legal representation in courts (\$380 per treated individual over 2 years, as calculated in [Aberra and Chemin \(2021\)](#)).

6.4 Robustness checks

We present three robustness checks to adjust the standard errors in [Table 8](#). First, we use the exact Fisher test ([Young 2019](#)). This permutation test is an exact test regardless of sample size or distribution of error term, as opposed to conventional *t*-tests which depend on the assumption of large samples (to use asymptotic results), a condition that may be violated in the sample we use or a normal distribution of the error term. To implement this procedure, we obtain the observed *t*-stat for the outcome in question, permute the observations randomly between the treatment and control groups, obtain a simulated *t*-test, repeat this 1000 times, and find the proportion of occurrences the simulated *t*-stat is above the observed *t*-stat, which is the Fisher *p*-value. [Table 8](#) shows that our three main findings of the paper (the increases in legal knowledge, property rights, and investment) are statistically significant when using the exact Fisher test.

Table 8. Robustness checks.

	(1) Legal knowledge	(2) Property rights without approval	(3) Investment
Group Trainings	0.55*** (0.13)	0.60*** (0.03)	0.23** (0.06)
[Fisher <i>p</i> -val]	[0.029]**	[0.001]**	[0.045]**
[FDR <i>q</i> -val]	[0.008]***	[0.001]***	[0.008]***
[No clustering SE]	[0.15]***	[0.23]***	[0.14]*
<i>n</i>	912	771	912

Notes: Outcome (1) is respondents' legal knowledge, as reported in Table 3. Outcome (2) is an index of total land rights without approval reported in Table 4. Outcome (3) is a standardized index of investment reported earlier in Table 7. [Fisher *p*-val] are the *p*-values from the exact Fisher test. [FDR] are the sharpened FDR-adjusted *q*-values for this family of outcomes. [No clustering SE] are the standard errors with no clustering at the location level. Refer to the notes in Table 2 for a description of the control variables used in the specification.

***, significant at 99% confidence level; **, significant at 95%; *, significant at 90%.

Next, an adjustment for multiple hypothesis testing is not strictly needed since the outcomes used in this article are already indices of variables designed to reduce the dimensionality of the dataset. The legal knowledge index is composed of 8 variables, the property rights index is composed of 6 variables, and the investment index is composed of 16 variables. Still, we present a test of multiple hypothesis testing based on these three variables, using 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. The results remain significant, as can be seen in Table 8. Intuitively, for these three outcomes, the best ranked *p*-value is 0.000005 (for the property index), below $10\%/3 \text{ outcomes} * 1 \text{ (first-rank)} = 0.033$, hence still significant at 10%.

Finally, we report in Table 8 the results without clustering the standard errors at the location level and the coefficients are statistically significant.

In Supplementary Appendix E, we also show that the results are similar if we were to simply compare the treatment group to the control group of each intervention, rather than using the full Specification (1).

In Supplementary Appendix F, we aggregate all the various treatments into one dummy variable. We still find positive effects.

One issue with the control group of the succession intervention is that it does not include people with an on-going land conflict, while the treatment group of the Group Trainings may include some. The result is the same if we restrict the sample to people with no on-going conflict, as shown in Supplementary Appendix D.

Supplementary Appendix Table H1 shows that the main results of the article are the same when control variables are excluded from the specification. In Supplementary Appendix J, we show that the results are the same when including as controls all the variables that are unbalanced at baseline.

In Supplementary Appendix M, we test for the presence of spillovers. We use GPS data to count the number of treated participants living within a certain radius of each individual in the control group. We find no impact of the number of treated participants on legal knowledge, land rights, or investments. We conclude that spillovers are unlikely to bias our estimates, at least along this geographic definition of spillovers.

Table 9. Sensitivity to attrition: Inverse probability weighting.

	(1) Legal knowledge	(2) Property rights without approval	(3) Investment
Group Trainings (s.e.)	0.56*** (0.12)	0.64*** (0.04)	0.33*** (0.06)
Control mean (sd)	4.45 (2.26)	1.13 (1.42)	0.00 (1.00)
n	912	771	912

Notes: This table summarizes our three main findings shown together in Table 8. Observations are weighted by the inverse of the probability of remaining in the sample at endline, based on a probit regression of attrition on age, education, gender, and number of plots. Robust standard errors are clustered at the location level. Refer to the notes in Table 2 for a description of the control variables used in the specification.

***, significant at 99% confidence level; **, significant at 95%; *, significant at 90%.

6.5 Effects on other outcomes

We had pre-specified in our pre-analysis plan a range of other outcomes. Overall, we find that the interventions have no discernible effects on perceptions of the judiciary and cost of legal representation (Supplementary Appendix Table G1), recourse to formal legal measures in the event of a hypothetical land conflict (also in Supplementary Appendix Table G1), the likelihood of participants expecting changes to their landholdings in the next 1, 5, and 10 years in Supplementary Appendix Table G3, the use agricultural inputs (manure, fertilizer, seeds, pesticides) in Supplementary Appendix Table G6, access to formal and informal sources of credit in Supplementary Appendix Table G7, and on labor supply (days worked on the plot) in Supplementary Appendix Table G8.

6.6 Attrition

Attrition was very low, with only nine households who refused to participate at endline (one in succession intervention, four in buy/sell, and four in will, none in the Group Training treatment group or the succession control group). One hundred and ninety-six other households did not refuse, but could not be located. To ensure that our results are not sensitive to refusals and unobtainable contacts, we present an inverse probability weighting test. We run a probit regression of an attrition indicator on the observable characteristics used in our prior regression specification: a gender household head dummy, number of plots, years of schooling, and age of the household head.

$$Pr[Attrit_i = 1] = \beta_0 + \gamma X_i + \varepsilon_i.$$

The inverse of the fitted values of the above probit is then used to weigh all non-attriters based on their observables. We then re-run regressions of our three main results on these re-weighted observations. In Table 9, we report the point estimates which do not deviate much from the main specification and maintain their significance.

6.7 External validity

Our results are remarkably similar to those found in other seminal studies on the effects of property rights on investment obtained in different contexts with different interventions. In Supplementary Appendix K, we regress investment on property rights, instrumenting property rights by the interventions, to compare our estimates to the literature. We discuss in

greater detail the validity of the instrument in [Supplementary Appendix K](#). We find very similar results to the existing literature using credible identifications strategies on property rights and investment, looking at other interventions such as issuing property titles in Peru ([Field 2007](#)) and Argentina ([Galiani and Schargrodsky 2010](#)), demarcating land in Benin ([Goldstein et al. 2018](#)), registering sharecroppers to be protected from eviction in West Bengal ([Banerjee et al. 2002](#)), or using the mode of acquisition of land as an instrument in [Besley \(1995\)](#) in Ghana. This is all the more remarkable given that the country of study and identification strategies are different (a randomized intervention in our case).

7. CONCLUSION

This article examined the impact of increased legal knowledge on the security of property rights and investment using a randomized field experiment in rural Kenya. Our interventions were motivated by our earlier work in [Aberra and Chemin \(2021\)](#) offering legal representation in court to resolve disputes, where it became apparent that most disputes were caused by inadequate legal knowledge in the first place. The fundamental intuition of this article is to address the root cause of these conflicts by designing a legal knowledge program.

The existing literature on legal empowerment has shown that information campaigns can have potentially large positive impacts on agricultural investments and productivity for small-scale farmers. Much of this evidence, however, has either relied on qualitative case studies or suffered from identification issues. We circumvent these issues by using a randomized control trial in Central Kenya, a setting where tradition and inadequate legal awareness might hinder the benefits of secure property rights. We recruited participants in a cascading manner to tailor the legal information delivered to the needs of each individual. We randomly assigned treatment status for the information sessions on three separate topics which were identified in [Aberra and Chemin \(2021\)](#) as the main causes for conflict: succession, the process of buying and selling land, and writing wills. Additionally, we combined these three training programs to deliver them to existing informal groups, which are mostly women's support groups. We added a "women's rights" training, explaining the various new progressive laws guaranteeing equal legal protections for women. This last feature is important because women are the primary food producers in our setting, yet usually suffer from discrimination; any clarification of the laws may be directly associated with increased agricultural investment.

We find that all training sessions significantly increase the legal knowledge of our participants, confirming our initial perceptions that many farmers are unaware of basic laws pertaining to succession and land transfers. In particular, the training session on succession has considerable downstream effects. It expands the bundle of property rights, in particular, the right to cultivate the land. The intuition for these results is that explaining the numerous steps and procedures to complete a legally valid succession informs cultivators and reassures them that the land they cultivate will actually belong to them after a process of succession.

We find much less effects of the buy/sell or wills training sessions, probably because of the timing of their expected effects. While the succession intervention is designed to have an immediate effect on people currently cultivating the land but unsure about the succession process, the payoff of the buy/sell and will interventions will only materialize at a later date when a land transfer or a death occurs. We also find an effect of the Group Training intervention, which is logical since it contained the material of the succession intervention.

In fact, we find that the Group Training intervention increased legal knowledge, land ownership, the security of property rights, and investment, as measured by questions on 16 different types of investments common to the region (which pertain to long-run investments such

as building cow pens, adopting irrigation, and improved agricultural techniques). This holds true when restricting the sample to female respondents, to take account of the fact that this intervention was mostly delivered to women's mutual support groups.

Considering that the Group Trainings intervention had the strongest effect on property rights and investment, a direction for future research is to disentangle which of the three features generate this large impact: the fact that it was delivered to women, the fact that it included all the three training sessions on succession, buy/sell, will, and an additional session on Women's rights, or the fact that it was delivered in groups. Indeed, peer learning in groups about the legal processes or investment opportunities may have contributed to the result.

This article has important policy implications. First, it provides a rationale for the growing calls from law and development practitioners to involve vulnerable segments of society in judicial reforms that have been undertaken in many developing countries over the past two decades. Legal empowerment advocates claim that sustainable and inclusive growth can only be realized when the general public is aware of their constitutional rights and the laws that affect their livelihoods.

Second, these interventions provide a new way to improve the functioning of courts. Numerous judicial reforms have been undertaken at great cost to improve the access, speed, and quality of courts (Chemun 2020). In this article, we provide a new result: tackling disputes before they even reach the courts may reduce pressure on the courts. This benefits all other court users, not only the direct beneficiaries of the interventions.

There is no guarantee that the exact same interventions would work in other contexts. The substance of our interventions was carefully tailored to respond to the particular circumstances of the local community. Our goal in this article was to prove that greater knowledge of the law matters. Future work should focus on adapting the training to other categories of the population than farmers, for example, entrepreneurs or workers, to establish a menu of effective legal training programs.

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SUPPLEMENTARY MATERIAL

Supplementary material is available at *Journal of Law, Economics, & Organization* online.

Conflict of interest statement. The authors declare no conflict of interest associated with this project.

DATA AVAILABILITY

The data underlying this article will be shared on reasonable request to the corresponding author.

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