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How should the government bring small firms into the formal system? Experimental evidence from Malawi[#]

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Abstract

Governments seek to reduce pervasive firm informality for multiple reasons: taxes, firm growth, rule of law, and information. We conducted a randomized experiment in Malawi to test three alternatives to achieving these goals: a) helping firms obtain a business registration certificate that offers formal market access but imposes no tax obligations; b) helping firms obtain both business and tax registration; and c) supplementing business registration with a bank information session. We find incredibly high demand for obtaining a formal status that is separate from tax obligations, and very low take-up of tax registration. Business registration alone has no impact on formal market access or firm performance. However, combining registration assistance with the bank information session increases firm sales by 20 percent and profits by 15 percent. The results highlight the advantages of separating business and tax registration, but also the need to help firms benefit from their new formal status.

Keywords: Informality; business registration; tax; government; financial access, small enterprises.

JEL codes: O17, O12, C93, D22, H41, L26

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1. Introduction

The informal sector accounts for 30 to 40 percent of total economic activity in the poorest countries, and a much higher share of employment (La Porta and Shleifer, 2014, Gollin, 2002). It is particularly pervasive in poorer African countries such as Malawi, where 93 percent of firms have not registered with the government.[1] One response could be to wait for development, since it has reduced the size of the informal sector in other countries (e.g. McCaig and Pavcnik, 2015). However, many governments want to jump-start this process and encourage firms to register.

There are four main reasons why governments may wish to formalize small firms. The first reason is to broaden the tax base (e.g. Everest-Phillips, 2008; World Bank, 2009), both as a means of raising tax revenue as well as of potentially increasing government accountability (IMF, 2011). A second is to enable firms to access the formal economy and spur their growth through a range of potential benefits to both firms and society in general. Firms can bid on government contracts, access formal financial services, and engage in wider markets (e.g. through exporting). This can increase the incomes and improve the livelihoods of poor entrepreneurs, potentially create more jobs or improve the employment conditions of their workers, improve the productivity of the whole economy, and reduce misallocation (Ulyssea, 2020). Third, by having firms recognized by the state and vice versa, the government can help increase the sense of rule of law and provide some foundational support for the rule of law (Everest-Phillips, 2008). Finally, by having firms register and provide information about themselves to the state, the government can achieve a better understanding of the structure of its economy. These data can be used both directly as a means of better targeting government programs to small businesses, as well as indirectly serve as an input into other government functions such as infrastructure planning. For example, governments have used lists of registered firms as sample frames for firm surveys such as the Enterprise Surveys, and as a basis for deciding how to assist firms during the COVID-19 pandemic.

However, while governments may desire firms to become formal, firms may find these reasons much less compelling. Registering for taxes will impose additional costs on businesses, lowering profits, and firms may believe they receive few public goods in return. Small firms may not be likely to need some of the purported benefits of formal status (such as bidding for government

[1] Source: 2004-05 Integrated Household Survey, which shows 93 percent of firms are not registered with the Department of the Registrar's General (DRG).

contracts or exporting), and may face other constraints that prevent them from accessing other benefits such as business banking. And individual firms are unlikely to internalize the societal benefits of their compliance with the rule of law and of their data informing government policy. The result is that when firms weigh the potential benefits of formalizing against the costs, most may choose to be informal.

The standard government response to this firm comparison of the costs and benefits of formalization has been to lower the costs of formalizing, by making it easier for firms to register. The World Bank's *Doing Business* project noted that "Since its inception, *Doing Business* has captured at least one reform making it easier to start a business in almost 95% of economies."[2] However, in practice, the majority of informal firms have remained informal after these reforms (Bruhn and McKenzie, 2014), and existing randomized experiments have found low take-up rates to interventions which provide information, assistance, and cost discounts in registering for national taxes. This includes de Mel et al. (2013) who find no impact of information and free registration costs on registration with the tax authority in Sri Lanka; Andrade et al. (2016) who find no impact of information or free registration costs on registration for taxes in Brazil; Galiani et al. (2017) who find a small and temporary effect of personalized assistance and a temporary tax holiday on tax registration in Colombia; and Benhassine et al. (2018) who find 9.6 percent of firms register for a new tax status in Benin. The ongoing tax liabilities incurred once a firm formally registers for tax purposes can mean that simply lowering the initial registration costs may have no effect on informality without this also being accompanied by a reduction in the ongoing tax rate (Rocha et al., 2018). Somewhat larger impacts have been found for municipal registration, where one-quarter of firms registered in Peru (Alcázar et al, 2010), and through expensive interventions that offer additional benefits for formalizing (de Mel et al, 2013 and Benhassine et al, 2018).

One of the most popular types of reforms has been to set up "one-stop shop" service points, in which a single registration covers registration of both the company name, as well as for tax purposes and other licenses required. This approach has been implemented in 115 countries[3], including throughout West Africa, and attempts to achieve all four reasons for governments to

[2] Doing Business (2017), page 25. The Doing Business has been discontinued and is being replaced by the World Bank Group's Business Enabling Environment report.
[3] Source: http://www.doingbusiness.org/data/exploretopics/starting-a-business/good-practices#Creating [accessed 27 July, 2018]

formalize firms at once. An alternative approach, used in Malawi and prevalent in most of the rest of Africa (Figure 1), is to separate the process of business registration from that of tax registration. This separates the first reason for formalizing firms from the other three reasons. But it is then still an open question as to whether formalization without tax obligations offers meaningful benefits to firms, or whether additional policies are required.

We conducted a randomized experiment with over 3,000 informal firms in Malawi to test competing approaches for how governments can bring firms (at least partially) into the formal sector and achieve some, if not all, of their goals in formalizing firms. A first treatment group was offered assistance obtaining a business registration certificate at no cost, which is the main form of identification needed for opening a business bank account, registering land, and applying to government assistance programs. A second treatment group was offered this assistance in obtaining both the business registration certificate and a tax payer identification number, enabling us to measure the additional demand for tax formalization. For the third treatment group, we focus on the idea that firms may face information problems in realizing the benefits of registration. To that end, the third group receives assistance in obtaining a business registration certificate, plus receives an information session with a private bank, culminating in the chance to open a business bank account.

Our results highlight the importance of *how* governments attempt to bring firms into the formal system for their ability to achieve their different goals from doing so. Even without tax registration, we find the existing transaction costs of registering a business are enough to deter the average firm from registering their business. Yet, when we offer our assistance, which brings the costs close to zero, a large majority (75 percent) of the firms register their businesses. This impact is vastly greater than in any of the existing literature on firm formalization (Ulyssea, 2020). This intervention brings most firms into compliance with this law, and provides the government with basic data on firms. However, on its own, this registration brings no discernable private benefits to the firms, nor does it increase trust in state institutions. Second, the disincentive to register for taxes outweighs any potential benefits plus the removal of transaction costs: the take-up of our offer of assistance for tax registration was around 4 percent, similar to the take-up rates in several other tax formalization experiments. Finally, it appears that transaction costs are not the only barriers that prevent formalization from contributing to firm growth. When we offer the bank

information session in addition to the registration assistance, we find not only high levels of registration, but meaningful increases in the use of financial services and, ultimately, firm profits. This highlights that the benefits of formalizing are not automatic for firms, but that additional policy efforts are needed to help firms take advantage of them. Moreover, this combination intervention is low cost, suggesting it could be used at scale.

The remainder of the paper is structured as follows: Section 2 describes the business registration process in Malawi, contextualizing this in terms of the procedures in other countries. Section 3 explains the impact evaluation and the data collection methodology and discusses the baseline characteristics of our sample. Section 4 presents the impacts of the interventions on formalization and business performance. Section 5 revisits the benefits from formalization from the perspective of the state. Section 6 concludes.

2. Business Registration in Malawi

This evaluation took place in the context of a broader effort by the Government of Malawi to improve the business environment and to streamline the process of business registration. As part of the Business Environment Strengthening Technical Assistance Project (BESTAP) supported by the World Bank, the government introduced a new Business Registration Bill seeking to enforce the registration of informal enterprises; drafted a new Business Licensing Bill; and was transitioning to an online-based electronic system of business registration reducing the time to register firms. The goal was to reduce the turnaround time from 14 days to less than five. [4]

2.1 The Formalization Process in Malawi[5]

The majority of firms in Malawi register as sole traders or in partnership, which is termed registering as a "Business Name".[6] The three key steps to registration for small enterprises are: 1) business registration at the Department of the Registrar's General (DRG) to obtain a Business Registration Certificate (BRC); 2) tax registration at the Malawian Revenue Authority (MRA) to

[4] The effects of these reforms have only partly been recognized by the 2018 Doing Business Report because some of its details (launch of automated system) were still being finalized.
[5] This section describes the formalization process as it was during the time of the intervention. The Government of Malawi has an ongoing program to integrate the registration more and widen the tax based, which may bring changes in this process.
[6] Approximately 135,000 firms are registered as "Business Names" vs 11,000 as limited liability firms.

obtain a Tax Payer Identification Number (TPIN); and 3) registration at the local City Council (CC) to obtain a business license. The three institutions that provide these documents operate independently and do not share information on registered firms and taxpayers, although a BRC is a pre-requisite for obtaining a TPIN. As a result, business registration and tax registration can be separated, as in much of the rest of Africa (Figure 1), and businesses can choose which aspects of formality, if any, to obtain. We discuss the steps and costs of each of these dimensions of formality in turn, and then discuss the potential benefits of each to the firm.

2.2 Obtaining the Business Registration Certificate

The business registration process involves filling in the *Application for Registration of Business Name* form and submitting it with one passport photo or a copy of the National ID card to the Registrar General's office in Blantyre (Malawi's second largest city and commercial capital). The cost of applying to register as a sole trader or in partnership was Malawian Kwacha (MWK) 200, or US$ 1.30, at time of baseline. This cost was increased during the study (in mid-2012) to MWK 2,000 (equivalent to $8 in 2012 when intervention took place, but $4 in 2013). In addition to the registration costs, there are transport costs for those not living in Blantyre. The transport cost for firms in capital city of Lilongwe of traveling to Blantyre and returning to collect the certificate is around $32 by bus ($8 each way for one trip to drop off the paperwork and another trip to pick up the certificate when ready, with it being a 5-6 hour bus ride each way). The official wait time for processing a registration application is 14 days. However, this appears to vary considerably in practice, with conversations with lawyers and business owners suggesting that it takes some people just one day to register, while others are told it takes two months to register (and they are often offered help by a middleman for 5 to 10 times the actual price).

Enforcement of the BRC is very limited, with no general inspection process for checking whether firms have this document. The BRC does not, by itself, impose any further obligations on the firm to pay annual fees or taxes. In line with evidence from other countries (e.g. de Mel et al, 2013; Andrade et al, 2016), baseline knowledge of the registration process and cost was limited. Eighty-three percent of respondents said they did not know the minimum cost of obtaining a BRC, while for the remaining 17 percent, the median response was ten times more expensive than the actual cost at that time. This difference may partly be associated with incorporating the costs of travelling, as for those that provided a response in Lilongwe the median estimated cost was fifteen times

higher than the actual cost. In Blantyre, the median response was five times more expensive. The response may also be influenced by the cost experienced by peers when using the services of a middleman to submit the application.

2.3 Obtaining a Tax Payer Identification Number

Registration for taxes (TPIN) is free but businesses have to fill in an application form, attach a BRC, and submit it to the Malawian Revenue Authority (MRA), which has branches throughout the country. A TPIN can be obtained on the same day if the application is hand delivered. Once a business has a TPIN tax authorities may contact the business if it does not file a monthly declaration of earnings. Enforcement of the monthly declaration is rare for small firms. Firms with less than MK 6 million in annual turnover are required to pay 2 percent of their sales in taxes (this threshold is applicable for about 95 percent of the firms in this study). All firms with a TPIN are required to report their turnover to the MRA and pay the corresponding tax every month, which implies an additional cost of travelling to and from the MRA office. The cost per trip is on average of $7 compared to taxes due on average of $18 per month.[7]

2.4 City Council Licenses

All firms are also supposed to obtain licenses at the local City Council (Lilongwe, Blantyre, etc.) in order to operate. The exception to this is firms operating in a trading market, since they have to pay a fee at the market, typically MK 50 ($0.30), for every day of operation. Small shops adjacent to a major market are also covered by the rules governing those trading in the market. For firms obtaining licenses directly at the City Council, the exact licenses required depend on the type of business. If the enterprise has its own premises, it needs to get the *Annual General Business License* and then specific licenses for the sector it is operating. For the General License, a hairdresser in Blantyre pays $13[8] annually while a retail company in a better location[9] pays $133. These licenses have to be renewed every year. Entrepreneurs who do not pay but operate from a visible place, such as a main street, are often subject to inspections by the City Council. The

[7] These estimates use average baseline sales as the reference.
[8] All the fees mentioned in this section refer to those practiced in Blantyre at the time of the impact evaluation design (2011), and are converted into the dollars at the fixed exchange rate at that time (165 MWK/USD).
[9] This is defined by the City Council considering access to city center business activities.

municipality is highly dependent on these revenues for their budget, and hence has a big incentive to find non-payers, who can be closed down by the council if they fail to comply.

2.5 The potential benefits of different types of formalization

Table 1 summarizes the main theoretical benefits to a business of the three different aspects of formalization. The main benefit of the business license issued by the City Council is to avoid the risk of being shut-down or harassed by municipal inspectors.[10] Most of the benefits of becoming formal can be achieved just with the business registration certificate. A BRC is required, and sufficient, for firms wishing to open a business bank account or to take a business loan from a formal bank. In addition, it is required for registration at the Malawian Chamber of Commerce, for registering land, and to access business development services provided by the government. The TPIN requires a BRC to be issued. The main additional benefits it offers on top of the BRC are that: (i) firms cannot be paid for a successful government tender without a TPIN; (ii) avoiding fines or harassment for failing to pay taxes (although enforcement is infrequent); and (iii) firms may be able to use their history of paying taxes to document their financial history to financial institutions when applying for loans.

3. Data and impact evaluation design

We discuss first the process of obtaining a sample of informal firms, before providing details on the randomization process and the interventions.

3.1 Obtaining a sample of informal firms

In this study, we target the informal micro and small enterprises that are likely to be able to benefit the most from business registration, and that the government has said would be their first group of interest for a future roadshow on business registration. We target firms in urban Lilongwe and Blantyre, the major commercial cities in Malawi. At the end of 2011, we listed over 100 business centers – that is, concentrations of firms including industrial parks, markets, streets with shops, set of workshops, etc. – and randomly sampled 46 of these business centers (23 in each city) to list all businesses operating within these areas. Through this process we listed 7,603 enterprises, 85 percent of which were not registered at the DRG. With this process, we excluded from the sample

[10] City council inspectors do not check on whether or not firms have a BRC or TPIN.

household-based enterprises. Surveys in Africa have shown that household-based enterprises tend to be the smaller on average than those operating in business centers (see for example, Bossuroy et al, 2013). Similar proportions of unregistered firms were identified in Blantyre and Lilongwe, despite the DRG being located in Blantyre.

Only one quarter of the firms listed were female-owned. We therefore oversampled female-owned enterprises in order to be able to examine how these interventions differ by gender. We focus on gender for three reasons. First, female firms may face greater barriers to formalization (e.g. through discrimination by service providers or time constraints that make it harder for them to make the trips necessary to register. Second, given that female-owned enterprises tend to be smaller and have a lower capital base than male-owned enterprises on average, female-owned enterprises may be further away from the margin of formalizing and less likely to respond to the assistance. Lastly, Jayachandran (2020) reviews the evidence and argues that many interventions aimed at enterprise growth do not work as well for female entrepreneurs.

To draw the sample for the baseline, we stratified the listing data by location and gender of the business owner and identified 3,600 firms that complied with one of the following criteria: (i) had at least one worker contracted outside of family members and business owners, (ii) were operating in a fixed location with more than one person working in the business, (iii) were at the 25th percentile of revenues or above. These criteria were developed in collaboration with government officials to focus on firms that were larger and more likely to both be the target of government formalization efforts, as well as potentially more likely to benefit from formalizing. We were targeting 3,000 firms for the baseline but started with 3,600 given the risk of not finding firms (the listing exercise collected limited contact information) or finding that they registered in the meantime or were incorrectly listed as not registered.[11] Through this process, we completed a detailed baseline survey for 3,002 informal firms, of which 1,195 were female-owned and 1,494 were from Lilongwe.

The baseline survey was done between December 2011 and April 2012. The baseline survey collected information on the characteristics of the firm and owner, including their usage of

[11] This process requires attempting to visit all 3,600 firms at least once and keep tracking through a protocol those not found in the first attempt. The work would be concluded when at least 3,000 informal firms were interviewed for baseline.

financial services and finance, their financial literacy and knowledge about business registration processes, and the financial performance of their business.

3.2 Summary Characteristics of Sample by Gender

Appendix Table 1 compares and further discusses the baseline characteristics of our sample by gender. Over 70 percent of the firms in our sample were in the retail sector, including selling groceries (21 percent of total), selling agricultural produce (10 percent), selling animal produce (10 percent), and hardware shops (8 percent). The focus on retail was particularly pronounced for men, while women were more prevalent in services (35 percent for women versus 14 percent for men).

Most firms in our sample were owned by a single individual and had an average of two people working in the business (including the owner). The average business was started by the owner and had been in operation for 8 years. The age and education of the owner do not differ significantly by gender. The mean age of the owner was 33, and 65 percent had completed primary school or higher, but only 29 percent had completed secondary school. The mean firm had revenue of just over $1,000 per month, and profit of $213. Male-owned enterprises were larger on average than female-owned enterprises, with mean monthly profits of $243 versus $169 for females. The two percent turnover tax required of firms registered for taxes therefore would average $20 per month, which would be approximately 10 percent of average profits. These businesses were all screened to ensure they did not have a business registration certificate at baseline (and therefore also could not have a tax registration), but 55 percent paid city or market fees.

At baseline, over 60 percent of firms saved money in some form of an account, with 57 percent using a bank account. However, almost all of these bank accounts were personal accounts, as only about 2 percent of the firms (self-reported) had access to a business bank account at baseline (which is consistent with the fact that business registration is almost always a pre-condition for opening an account in the name of the business). Although use of a bank for (personal) savings is relatively common, the use of bank loans is rare, with only 7 percent of entrepreneurs having had a bank loan used for business purposes in the past.

Firms were asked at baseline what they thought the two main benefits of obtaining a BRC were. Only 72 percent could name any potential benefits, with 28 percent saying they saw no benefits at

all. Among those listing benefits, the most common one was one of perception, with 42 percent saying this would make them a "real" business. Next, firms listed compliance with the law (30 percent), potential access to government assistance (30 percent), access to finance (19 percent), and avoiding harassment from authorities (18 percent). These perceived benefits were similar by gender of the owner.

3.3 Random Assignment to Treatment and the Different Treatments

We stratified firms interviewed at baseline on the following five measures: *gender*; *location* (Blantyre, Lilongwe); *sector* (commerce, services and manufacturing); *business owner being able to identify benefits of business registration* (binary variable); and *high capture*[12]. We then randomly assigned the sample within each stratum to either one of the three treatment arms or to the pure control group (Figure 2). The different groups are as follows:

- A treatment group assigned to receive costless registration for the business registration certificate (745 firms)
- A treatment group assigned to receive costless registration for the business registration certificate, as well as for a tax-payer identification number (293 firms).
- A treatment group assigned to receive costless registration for the business registration certificate, along with an invitation to information sessions at a bank where business bank accounts were offered (1,207 firms).
- A control group of 757 firms

We discuss each of these treatments in more detail below. Table 2 shows the summary statistics for all four groups, showing that the groups are balanced when compared with the pure control group. The groups are of different sizes for two reasons. First, since based on previous studies we did not expect high take-up of the tax registration, our aim was to test whether this same result also applied in Malawi, without expecting to then have sufficient power to test the impact of tax

[12] This last measure is a binary variable similar to Fafchamps et al. (2014), and takes the value of 1 if the respondent agrees with the following two statements: "Whenever I have money on hand, my spouse or other family members always end up requesting some of it", and "People who do well in their business here are likely to receive additional requests from family and friends for money to help out with some expense or another".

registration on subsequent firm performance. In contrast, since the main benefits of formalization appear in theory to occur through the (non-tax) business registration, we wanted a sufficient sample to have power to measure the impacts of this type of formalization on firm performance. Second, the partner private bank requested a larger sample size to offer its services to, which is why the last treatment group is larger.

3.4 The costless business registration intervention

All three treatment groups share the main intervention of making *business registration costless*. To do this, the team[13] visited business owners in the treatment groups and offered assistance in registering their businesses, while conveying to them a single-page information flyer with the potential benefits offered by registration. For those that were interested, we assisted them in filling out the Business Registration form, took the required photo, and delivered their entire application to the DRG, including paying the Business Registration fee on their behalf. Once ready – on average certificates take two weeks to be prepared - we delivered the Business Registration Certificates (BRC) back to these firms. Thus, the only cost to these firms was the time it took to fill out the registration form (where they were assisted by our team).

Across the three treatment groups, we invited 2,245 firms from our sample of informal MSMEs to register at the DRG through this costless process. This took place between June and September 2012. There are two competing aspects that make our cost structure different from the normal registration process of individual entrepreneurs. On one hand, the NGO working on this with us has to deploy enumerators to offer handholding to firms in the registration process. This is costly. On the other, the NGO is able to save by bringing to the Registrar's General office a large set of applications, minimizing the transport costs. The all-in costs[14] of conducting the business registration intervention was $22 per registration offered (and approximately $27 per registration offer accepted given the high take-up rates we will discuss).

[13] Although this intervention was led by Innovations for Poverty Action (similarly to the baseline survey), the team presented itself as a separate NGO with a different name (BRC) to reduce the risk of linking the survey to the intervention. Additionally, individual enumerators were not deployed in the same city to conduct both the survey and the intervention to again minimize the risks of survey effects on take-up.

[14] Project Management, Training of team, Registration Fees, Printing of documents, Travel, Communications, Overheads.

Considering these costs, this is an intervention that can reasonably be scaled up when compared with other interventions typically provided to firms (interventions such as managerial training cost often in excess of $300 per beneficiary). It would make sense to invest in this intervention if the returns from the intervention exceed 0.3 percent of the median firm's monthly profits.[15]

At the end of this intervention the government, facing macroeconomic pressure and declining budget support from the international community, decided to increase the registration fee to MWK 2,000[16], among a set of changes in fees to increase revenues. The hike in BRC price affected less than 10 percent of the firms that we provided registration support to in our study and occurred only after firms had already accepted our support. Furthermore, given that the project covered the full cost of registration and that this expense cost was not shared with business owners at time of their decision to participate in the intervention, the actual cost of registering could not have influenced firm behavior. Even considering these new fees, the intervention would make financial sense to scale up when the returns of the intervention exceeds 0.5 percent of the enterprises' median monthly profits.

3.5 The tax registration intervention

Out of the 2,245 firms that were offered business registration, we offered a random group of 293 firms the additional option of assistance in registering for taxes and thus obtaining a TPIN. For the enterprises in this treatment arm, we offered the two interventions together, explaining that the process of formalization included these two steps: first the Business Registration and then the TPIN. Entrepreneurs were allowed to accept just the national Business Registration. As with the BRC, we assisted the entrepreneurs in filling out the TPIN form and delivered their application to the Malawian Revenue Authority (MRA). We pooled enough applications and delivered them jointly to the MRA, obtaining TPINs in the same day. When hand-delivering the TPIN certificates back to the business owners, we provided an example of the monthly form that needed to be submitted and explained the tax payment process they would need to follow from then on.

[15] The median monthly profits at baseline are of $133. Assuming perpetuity on a 20% annual discount rate on returns of $0.45 per month from this investment, the net present value would be positive.
[16] Although the government was in general seeking to conduct reforms to facilitate registration, the tight budget led to an increase in the business registration fee, which had not been revised for more than 20 years.

3.6 The bank information session and bank account intervention

In the final treatment group, 1,207 of the firms offered Business Registration were also invited to an information session held by the private bank NBS Bank[17], on the benefits of business bank accounts and were offered bank accounts in the name of their business at the conclusion of the information sessions. This intervention was motivated by the combination of several studies which have showed positive impacts of access to bank accounts on microenterprise investment and profits (e.g. Dupas and Robinson, 2013; Brune et al, 2017; Schaner 2018), coupled with literature showing that formalization has often not delivered measurable improvements in use of formal financial services (Bruhn and McKenzie, 2014). While general financial education programs have often had limited impacts on increasing use of bank accounts (e.g. Cole et al, 2011), more specific information sessions which walk firms through step-by-step the process at a specific institution appear more promising (e.g. De Mel et al, 2011).

With this intervention, we test the interaction between business registration and these information sessions, not the effect of information sessions on their own, nor the importance of just information sessions versus just business bank accounts. The decision to evaluate the combined effects of these interventions was based on the idea that firms may face information barriers in transforming business registration into increased access to formal credit markets. NBS Bank was interested in increasing its reach and saw this combined intervention as a potentially inexpensive mechanism for targeting potential clients (as they would have the assistance in registering the business as well). Note also that since having a BRC was a pre-requisite for a business bank account, it would not be possible to offer a treatment arm that just provided business bank accounts without business registration.

Firms were invited to NBS Bank's information sessions in the businesses' area of operation. Each session included a maximum of 30 participants, and was led by both NBS Bank representatives experienced in dealing with small business clients and a professional trainer in financial literacy. The information sessions comprised 20 hours of activities (two days of eight hours each and a follow-up session one week later, lasting four hours), with information provided on the following modules: (i) formal and informal financial institutions, and the role of banks; (ii) the benefits of

[17] NBS Bank was selected based on its interest in developing its SME Department, as well as its previous experience working with the IFC on women entrepreneurship, and with researchers on impact evaluations.

bank accounts; (iii) identifying the specific problems that businesses face, namely the intertwining of business and household responsibilities; (iv) the benefits of separate business and household responsibilities; (v) how business bank accounts allow for the mental and physical separation of household and business funds and (vi) practical examples of using bank accounts for business purposes. At the end of the second day, NBS Bank offered a recently launched business bank account, which had a lower minimum balance (MWK 500) than previous products offered by the bank. This business bank account was available to all firms in Malawi with a BRC.

3.7 Sources of Data for Measuring Impacts

We use two sources of data for measuring impacts of these interventions. The first are data from our administrative records of program take-up. This includes information on which firms we assisted to get business registration certificates and a TPIN, as well as information on attendance at the bank information sessions and on which firms signed up for business bank accounts at the conclusion of these sessions.

The second source of data is the baseline and four rounds of follow-up surveys. The interventions took place from June to September 2012. Four rounds of follow-up surveys were conducted after the interventions. The first follow-up survey took place between November 2012 and March 2013, on average 4 months after the interventions. The second follow-up survey took place between November 2013 and March 2014, on average 16 months after the interventions. The third follow-up survey took place between November 2014 and March 2015, on average 28 months after the interventions. The last follow-up survey took place between June and October 2015, on average 35 months after the interventions.

Attrition was 5.7 percent in the first follow-up, 9.4 percent in the second follow-up, 10.9 percent in the third follow-up, and 10.5 percent in the fourth follow-up. Attrition rates were similar by treatment status (see Appendix Table 2).[18] Although attrition rates were low, a minimum of nine percent (in the first follow-up) and a maximum of sixteen percent (in the second follow-up) of the firms interviewed in the follow-up surveys had closed their businesses and not started a new one.

[18] The BRC treatment group attrition was statistically different from the control group in the first and third follow-ups, although the difference in response rates are small in magnitude.

This reduces the number of people in our samples that currently operate firms, but there are no differences between groups in closure rates (Appendix Table 2).

4. Results

Table 3 provides take-up results based on the BRC and TPIN certificates delivered with our assistance. Overall take-up of business registration was 75 percent for those offered just the BRC. The take-up of the BRC was 85 percent among those also invited to bank sessions on separating household and business money, and 69 percent among those offered BRC plus the TPIN (since they could opt for the BRC while declining the TPIN). These differences in take-up rates of BRC are statistically significant across the treatment groups. In contrast, only 4 percent of those offered assistance with tax registration received a TPIN with our assistance.

Regardless of arm, the BRC take-up rates are extremely high compared to the formalization rates in other studies that have offered assistance with formalization (De Mel et al, 2013; Alcázar et al, 2010; Jaramillo, 2009; Andrade et al, 2016; de Giorgi and Rahman, 2013; Benhassine et al, 2018). With the exception of de Giorgi and Rahman (2013), all the existing studies have focused on tax or municipal registration, which has involved ongoing cost obligations to the firm in the form of taxes. De Giorgi and Rahman (2013) provide information to aid in business registration, but not the costless assistance that we used here. However, we see that even with costless assistance, take-up rates for the TPIN are extremely low, suggesting that it is the combination of a business formalization status that offers potential benefits (like bank access), low transaction costs, and no implied future cost that is responsible for the high BRC take-up rates.

The remainder of Table 3 examines differences in take-up rates by gender, and by location. Take-up rates are similar by gender for business registration when offered alone, or with the banking information session. However, there is a significant difference in take-up of the business registration certificate when offered together with the TPIN assistance: only 58 percent of women obtain a BRC in this case, compared to 76 percent of male owners. Across all treatment groups, the main reason for not getting a BRC is that the business had closed, moved, or could not be located to offer the assistance.

If the time and costs of travelling to the Registrar General's office in Blantyre were the main constraint to obtaining a BRC, we would expect the treatment to be more valuable to firms in

Lilongwe, and to see larger treatment impacts there. However, Table 3 shows the fraction of treated firms getting a BRC was very similar in the two cities. This suggests that the information provided about the process and the personal assistance filling out forms were more important than the saving on travel costs per se.

Seventy-two percent of firms in treatment group three attended the bank information sessions. An important factor for the high take-up of these sessions was likely the close proximity of the sessions with the firms' place of operations. Out of the business owners that participated in NBS Bank information sessions, 89 percent of them opened bank accounts in the name of the business, resulting in 64 percent of all invited firms opening a business bank account.

4.1 Estimating Treatment Impacts

To estimate the impact of the different treatments on outcomes of interest, we run the following ANCOVA specification for outcome *y*:

$$y_{i,t} = \alpha + \beta_1 Treat1_i + \beta_2 Treat2_i + \beta_3 Treat3_i + \lambda y_{i,0} + \sum \delta_s d_{i,s} + \sum_{j=1}^{4} \theta_j 1(t = j) + \varepsilon_{i,t} \quad (1)$$

Where *Treat1, Treat2,* and *Treat3* indicate whether firm *I* was assigned to the BRC assistance, BRC+TPIN assistance, or the BRC + bank information sessions treatments respectively, $y_{i,0}$ is the baseline value of the outcome of interest (included to increase power as per McKenzie, 2012), and the $d_{i,s}$ are randomization strata dummies (Bruhn and McKenzie, 2009). We pool results over all four follow-up surveys to further increase power, including survey round fixed effects θ_j. The coefficients β_1, β_2, and β_3 then provide the intent-to-treat effects averaged over all post-treatment rounds. Since randomization was at the individual level within strata, we use robust Eicker-White standard errors for the $\varepsilon_{i,t}$, clustered at the firm level. In addition to estimating the average effects, we allow for treatment interactions with gender to test whether impacts vary for male versus female business owners.

When it comes to estimating business outcomes, a key issue is how to handle businesses which are closed. Our approach is to code the outcomes for these firms as zero. That is, a business which is closed is assumed no longer to have a formal license, a business bank account, or other such outcomes. This approach has the advantage of comparing outcomes for the full treatment and control groups, without conditioning on a potentially endogenous outcome (business closure).

Nevertheless, Appendix Table 2 shows there is no impact of any of the different treatments on business closure rates, and so our main results continue to hold conditioning on firms still in operation (Appendix Table 6). For several savings outcomes for which it is possible that individuals are saving even without operating a business, we use the sample of firms still in business since we lack data on these outcomes for those whose businesses have closed.

In addition, we follow the methodology of Kling et al. (2007) to test the significance of families of outcomes in a single aggregate. For each family of outcomes, we convert all outcomes so that the sign of all of the variables in a family goes in the same direction; calculate the z-score of each variable by subtracting the control group mean and dividing by the control group standard deviation; and take an average of the z-scores in the family. To further adjust for multiple hypothesis testing, we provide sharpened q-values, using the Benjamini et al. (2006) method for limiting the false discovery rate (FDR).

4.2 Impacts on Formalization

Table 4 reports the impacts of our different treatments on the three key dimensions of formality. These measures are self-reported by business owners from the four follow-up surveys.[19] Although we asked the business owners to show the certificates for each of the dimensions of formality, a significant number of them – including of those that we have delivered business registration certificates – said they had them in a secure place like at home. Hence, reporting only on certificates shown to enumerators would underestimate the impacts on these measures.

We see that obtaining a business registration certificate is rare in the absence of our treatment – only 8 percent of the control group firms have a BRC on average at follow-ups. All three treatments have large and significant impacts on the likelihood a firm has a BRC, varying from a 52 percentage point increase for the BRC alone assistance to 64 percentage point increase for the BRC + bank information session treatment. This provides a powerful first stage to enable us to measure the impact of business registration on firm outcomes. In addition, it shows that the top-

[19] Appendix Table 3 shows the results by survey round for the impacts on having a BRC. Although we can reject equality of impacts over time, the impacts are significant in each round, and vary by at most 7 percentage points. Differences across rounds vary from the time path of control firms registering on their own, and of firms closing down and no longer being formally registered.

up offering of a bank information intervention to BRC alone leads to a 12 percentage point increase in the likelihood of formalizing.

The treatment effects on other forms of registration are small. City council licenses are common, with 64 percent of the control group having one, but there is no significant difference across treatment groups. Receiving a business registration certificate is therefore not changing registration behavior on this other margin.

Recall that the BRC is a prerequisite for being able to register for a tax-payer identification number. We see that only 6 percent of the control group gets a TPIN. We see statistically significant (at ten percent), but small, effects of the BRC treatment on the likelihood of reporting having a TPIN, but surprisingly no impact of the BRC+TPIN treatment. This suggests that those who were assisted to get the TPIN were those few firms that were going to go and get tax registration anyway, and that, at most, the BRC helped speed up the process of tax registration for a few other firms that were otherwise going to register for taxes.

Table 5 shows how these formalization results vary by gender. We find female business owners to have significantly lower treatment effects on obtaining a BRC from all three treatments. Two main reasons for this are that women are significantly more likely than men to need their spouses' permission to register, and that female firms are more likely to have closed between the baseline and the registration completion. Nonetheless, the overall effect for women is still large and positive and will allow us to examine the effects of registration on business outcomes.

4.3 Impacts on Business Performance and Employment

The first three columns of Table 6 examine the impacts of the interventions on business performance. Column 1 provides a standardized index of 10 different sales and profits measures, while columns 2 and 3 look at winsorized monthly profit and sales respectively. Simply being offered a BRC, or the combination of a BRC and TPIN, has no significant impact on profits or sales, with the coefficients small in magnitude. In contrast, being offered a BRC in combination with a bank information session leads to significantly higher profits and sales. The average impacts of this intervention on monthly sales and profits is of 20 and 15 percent respectively. The foot of Table 6 shows that we can reject that the impact of this combined treatment is equal to that of either the BRC alone or BRC and TPIN alone. We also report p-values for testing whether the

treatment effects on business performance vary over time. We cannot reject equality of impacts across rounds for our combined measure or for sales, although can for the combined treatment of BRC and bank information session on profits. Appendix Table 4 reports these round-by-round effects, and we see that the effects appear smaller in the first round, and then are stable over time in the remaining rounds. Recall that the first follow-up survey takes place only 4 months after the intervention, and so it may take longer than this for firms to benefit on profits.

The remaining columns of Table 6 examine the impact on the number of employees in these firms, and on the wages paid to their workers. These firms are small in size, with the average control firm only having one worker in addition to the owner. Column 4 shows the treatment effects on employment are all small (0.07 workers or less) and statistically insignificant. We cannot reject that the impacts on employment are constant over time, and Appendix Table 5 confirms the coefficients are small in magnitude in each follow-up round. This is consistent with the findings of the business training literature (McKenzie et al., 2021), where sales and profits increases of 5 to 10 percent are not typically enough to generate new employment in small firms. Column 5 shows daily wages of workers in these firms are low, and treatment has no significant on the wage per worker. Column 6 combines the number of workers and wage per worker to get the total wage bill. The combined BRC plus business information treatment has a marginally significant positive increase in total spending on employees, but this is not robust to corrections for multiple hypothesis testing.

These results on business performance and employment continue to hold when we condition on the sample of firms still in business (Appendix Table 6). In particular, we see a statistically significant 18 percent increase in sales and 14 percent increase in profits, and no change in employment.

Table 7 shows the gender differential impacts on business performance. Neither the BRC treatment alone, nor the BRC and TPIN treatment has a differential effect by gender once we control for multiple testing. We cannot reject that the combination of the BRC assistance and bank information session has the same (positive) effects on levels of business performance for women as it does for men. This is in contrast to small business grants and training interventions which have often struggled to be effective in growing female-owned firms. Since female-owned firms are smaller to begin with, the same level increase in profits and sales translates into a larger

percentage increase for females: the treatment impact on males is equivalent to a 17 percent increase in sales and 13 percent increase in profits relative to the male control mean, whereas that for females is equivalent to a 28 percent increase in sales and 20 percent increase in profits relative to the female control mean.

4.4 Mechanisms through which Formalizing Helped Firms

Table 8 examines the channels through which formalization may have benefited firms, based on the potential de jure benefits listed in Table 1 and the perceived benefits listed by firms at baseline. Column 1 shows that none of the three treatment arms had any significant impact on inspections, requests for bribes, or harassment from the state. Note that at baseline, few firms had ever been asked for bribes and only 15 percent had ever received a municipal inspection, so the status quo for most informal firms was already to not be inspected or harassed much.

The second column of Table 8 shows that the combination of the BRC and bank information session resulted in a significant increase in access to financial services. In particular, column 3 shows that treated firms are 39 percentage points more likely to have a business bank account, relative to a control mean of 4.1 percent. In contrast, firms which just receive the BRC assistance only experience a 1.7 percentage point increase in the likelihood of having a business bank account. This shows the potential financial access of formalizing is not automatic, but that information on how to do this is needed. Appendix Table 7 shows the other components of the index on financial access, showing that ownership of any bank account (whether personal or business) increases with the combined treatment, and saving is more likely to take place in a bank account and not at home nor in informal mechanisms such as ROSCAs and SACCOs.

The remaining columns of Table 8 show much more limited effects on firms of other purported benefits of formalizing. Columns 4 and 5 show statistically significant, but very small, increases in both the membership of the chamber of commerce and the likelihood of having an export license (the latter significant at 10 percent), with fewer than 1 percent of firms offered the combined treatment experiencing this benefit. Columns 6, 7 and 8 show no significant impacts on being able to participate in government tenders (which only 7 percent of control firms do), accessing government programs (which only 1 percent of control firms do), or on being able to change the business location (to potentially move to somewhere more visible).

The main channel is then through access to the formal banking system. Table 9 shows how this results in other benefits for firms in terms of use of formal finance. The BRC plus information session group reports being less credit constrained: they report being able to borrow $92 more within the next two weeks, compared to a control group mean of $571. Moreover, there is some evidence that they do borrow more, the BRC plus information session group borrows about $19 more (significant at 10 percent). This group is more likely to have been contacted by a bank (measured well after the information session) and they are about 8 percentage points more likely to have insurance, a large increase given that only about 1 percent of the control group has insurance for their business. About 56 percent of them had insurance against weather incidents, 24 percent against fire[20], 20 percent against theft, and 16 percent for life/health coverage of the business owner. The BRC plus information session group is also more likely to improve their business-finance hygiene: there is a significant increase in financial record keeping and they are less likely to take business funds for household needs. The point estimates also suggest higher savings, with firms in this treatment group being more likely to have above the median savings level.

The combination of the BRC and the bank information session therefore provided firms with greater financial inclusion, including more access to credit and banking facilities. We see this as the likely driver of increases in sales and profits. Column 1 of Table 10 shows that firms receiving this treatment were able to purchase significantly more inputs, which is in line with more financing, giving them the ability to produce more and have more to sell. The foot of the table shows we cannot reject these impacts are constant over time. This greater spending on inputs is consistent with evidence from randomized experiments that gave grants to microenterprises in Sri Lanka, Ghana, and Mexico (de Mel et al, 2008; Fafchamps et al. 2014; McKenzie and Woodruff, 2008) and found that they often have very high returns to more inventories and raw materials.[21] We see no significant impact on total business assets in column 2, although standard errors are large. Column 3 suggests this impact largely comes from scaling up existing production, rather than from

[20] In 2014, there was a large fire in one of the main markets in Lilongwe where our study is operating: http://www.nyasatimes.com/2014/07/30/fire-guts-lilongwe-tsoka-market/.

[21] These results are also consistent with households that already have businesses expanding after receiving access to microfinance (Banerjee et al, 2019; Meager, 2022). The businesses in our sample, which typically have another worker other than the owner, are larger than the smallest subsistence businesses for which loans may also have had limited effects.

introducing new products, with a small 1.7 percentage point increase in the likelihood of product or service innovation.

A potential alternative explanation is that the information sessions provided by the partner bank not only helped firms to access the business banking facilities that a BRC enables them to access, but may have also independently helped improve business outcomes as a form of business training. We saw in Table 9 that firms that got this combined treatment were more likely to keep financial records and separate household and business money. This is easier to do with a separate account for the business. In columns 4-6 of Table 10 we investigate whether firms improved business practices more broadly. Columns 4 and 5 show small and statistically insignificant impacts on whether firms use advertisements or marketing practices. In the last follow-up survey round, we asked an expanded set of business practice questions based on McKenzie and Woodruff (2017). Column 6 shows a small and statistically insignificant impact on these practices. As a result, any impact of the information sessions on business practices appears narrowly restricted to financial record-keeping. In Appendix Table 8, we show that the combined BRC and business information session treatment continues to have significantly positive impacts on profits and sales even after conditioning on the firm's financial record-keeping. Under a sequential ignorability assumption (Imai et al, 2011), this should give us a lower bound of the effect of formalizing, since it also removes the effect of changes in financial practices that come from formalizing. The coefficients are approximately 30 percent smaller in magnitude, suggesting the majority of our treatment effect is unlikely to arise from the financial education provided in the bank information session per se, but rather from the access to finance that the BRC and information session jointly helped firms to unlock.

5. What's in it for the state?

We set out four reasons why the state might be interested in having firms register. A first reason was to broaden the tax base. Column 1 of Table 11 shows none of the treatments have any significant impact on taxes paid, with the combined BRC and tax treatment having a point estimate of 40 cents higher tax revenue per month, substantially less than the $20 in taxes the average firm should be paying if registered for taxes. This is consistent with the small impact on tax registration. Column 2 shows that there is also no significant change in the likelihood that firms provide formal

tax receipts, so there is no increase in the paper trail that can be used for tax enforcement. So, this intervention does not benefit the state through the tax rationale.

Several theoretical models view taxation of small firms as a potential way of financing public infrastructure, and poor countries being stuck in a low-level equilibrium in which poor infrastructure contributes to many unproductive small informal firms, who in turn free-ride on, and do not contribute to, existing infrastructure (e.g. Fortin et al, 1997; Dessy and Pallage, 2003). But given a status quo of large informality, Dessy and Pallage (2003) acknowledge that it is infeasible to simply ban informality, and formalization needs to become self-enforcing, by offering more benefits to firms. Our intervention can be a stepping-stone towards greater formalization levels, by helping firms access some of the benefits a BRC can provide. We also note that many firms do contribute directly to the infrastructure they use most intensively, through paying market fees that support the infrastructure of the markets they operate in, even though they do not pay income taxes to the state.

At the time of our study, the Malawian tax system required small firms to pay something in turnover taxes, no matter how small their revenue. In contrast, many developed and developing countries use progressive taxation systems in which the tax rate is zero below a certain threshold, with marginal rates then increasing at different thresholds.[22] This provides a further way of transitioning firms into de jure formal status without requiring the smallest firms to start paying taxes until they grow. In 2021, Malawi amended its tax laws and introduced a presumptive tax system for small firms, in which firms with less than MK 4 million in annual turnover would be liable for zero taxes, and then progressively larger taxes would be levied on amounts higher than this. If this system were prevailing at the time of our study, 90 percent of the firms in our study would be formally required to pay zero taxes, and the remainder would face only an annual reporting requirement with annual taxes ranging from $136-$210.

Under a progressive income tax approach, bringing informal firms into formal status will still mean most of them do not contribute to the tax base in the short run, but it may make it easier to enforce taxes and have firms start paying small amounts on their marginal income above a threshold as

[22] For example, in the U.S., 44 percent of all taxpayers paid zero federal income taxes, which includes many self-employed individuals with low earnings (https://www.cnbc.com/2021/08/18/61percent-of-americans-paid-no-federal-income-taxes-in-2020-tax-policy-center-says.html).

they grow. However, as D'Erasmo and Boedo (2012) note, as countries grow, most of the gain to the economy may be likely to come from the growth of larger, productive, new firms, rather than from these existing informal firms. McCaig and Pavcnik (2021) document this pattern in Vietnam, where higher levels of economic growth reduced the size of the informal sector both spatially and temporally. We therefore see efforts to broaden the tax base as being better focused on targeted efforts with larger informal firms that are evading taxes, than with the smaller informal firms that make up most of our sample. For example, Andrade et al. (2016) suggest that it is only cost effective to try to enforce taxes on informal firms in Brazil that earn at least US$1,000 a month in profits, which only 2 percent of the firms in our sample make. Such a targeted approach towards the larger and more successful firms would also focus on the informal firms that are most likely to be competing with formal firms for customers. Local actors such as markets and municipalities with informational and enforcement advantages over the national government can then be better placed to have microenterprises make small contributions to the infrastructure that they directly use.

The second rationale we offered was in helping small firms access formal markets, grow, and potentially create jobs for others. Microenterprises are an important source of livelihood for many poor people. Helping the owners of these firms earn higher incomes is therefore valuable from a social protection policy viewpoint, even if these firms never grow very large. Our above results show that the combined BRC assistance and bank information session was successful in achieving this improving livelihoods aim, resulting in a $27 per month average increase in profits that appears sustained over our three years of follow-up surveys. Moreover, at a one-time cost of $27 per firm registered, this is a large return on investment, and a substantially cheaper way of assisting small firms than many other government business support programs. For example, McKenzie and Puerto (2021) find similar-sized percent increases in profits to this study from a business training program in Kenya that costs $200-300; while the 15 percent return on business grants in Ghana found by Fafchamps et al. (2014) would suggest a grant of $180 would be needed to attain the same increase in monthly profits as we find here. In contrast, in common with other policies targeting microenterprises, this intervention does not create additional employment for others, at least over the three-year time frame we examine.

The third rationale for the state to formalize firms was to increase the sense of the rule of law applying to all firms. Firms may derive direct utility from complying with the law, although we are not able to measure this. We did see that when asked about the main benefits of registering, the most common reasons given by firms were "to comply with the law" and "feel like a real business", suggesting some value in compliance. We then examine whether this increases trust in the state more broadly. Columns 3 and 4 of Table 11 show that none of the three treatments has a significant impact on trust in institutions[23] or in institutions that pertain directly to businesses (indeed, all of the coefficients are quite close to zero). Thus, this process of increased engagement with the state does not seem to have engendered a wider trust of government. Instead, direct efforts to reduce corruption and to improve the legal and political institutions firms face are likely to be needed to build this trust. Nevertheless, since the take-up rate of our combined intervention is so high (85% of firms get a BRC), this intervention does provide a way of ensuring that most of the targeted firms are compliant with a key aspect of the law. Moreover, as we note above, subsequent reforms that introduced a progressive tax code hold the promise to bring even more firms into compliance.

Finally, this high compliance rate also means that this program offers strong potential in helping achieve the fourth rationale for formalizing firms: as a means of obtaining basic data on firms that governments can use for targeting programs. The state is now better apprised of the number of firms, their location, and other information contained on the registration form. As with the sense of the rule of law applying to all, this is likely to become more valuable if the program is scaled up to cover more informal firms.

6. Conclusions

As economies develop, governments have multiple reasons to increase the formality of businesses: to increase the tax base, to improve the targeting of policies, to grow the economy, and, more generally, to increase the overall sense that a rule of law prevails. As this process gets under way, however, enforcement capacity is weak, and firms face a choice of whether to comply. And basic economic theory tells us that they will comply when the benefits outweigh the costs.

[23] Trust in government institutions includes confidence in courts, police, and national government. Trust in institutions dealing with private sector includes confidence in the City Council and in tax authorities.

In this paper, we make registration virtually costless, and an overwhelming number of firms choose to register. However, when offered the chance to engage in costless registration for taxes, almost no firms elect to pursue this option.

Registration on its own delivers no measurable benefits to firms. They do not experience smoother operations, nor does it increase their trust in state (and other) institutions. There seems to be another, compounding, issue at hand: imperfect information, or the transaction costs of learning how to access finance after registering. When we couple business registration with an information session at a commercial bank, benefits to the firm are evident. Firms open business bank accounts and increase their use of a range of formal financial services. This is associated with an average 20 percent increase in monthly sales and a 15 percent increase in monthly profits for the three years following the intervention. For governments seeking to increase microenterprise growth, reducing the costs of registration and coupling it with interventions that increase direct contact with formal financial institutions provide one compelling option. This highlights that government action alone may be insufficient, and involving private sector institutions can help in ensuring that the purported benefits of formalizing actually get realized.

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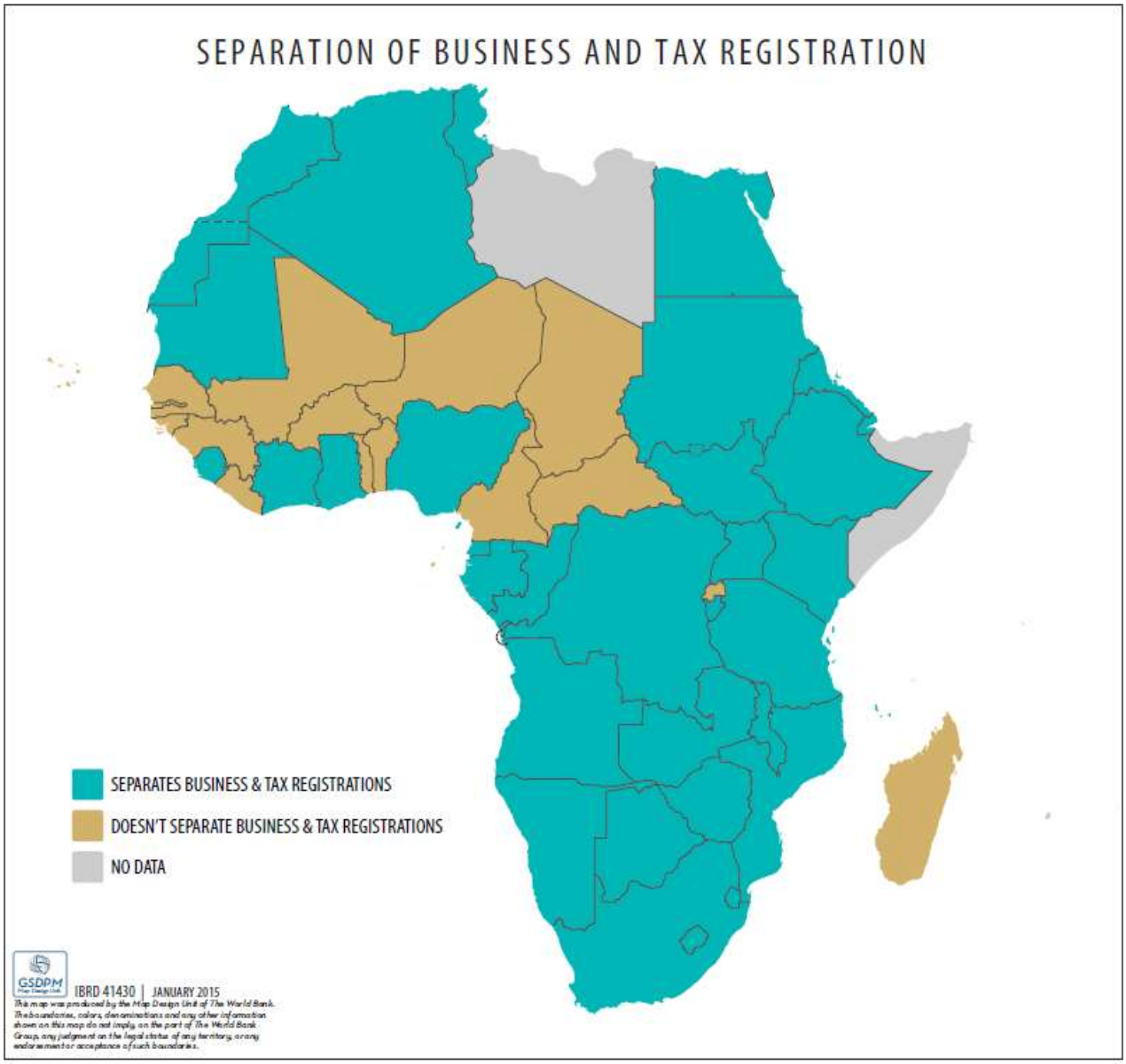
Figure 1: Separation of Business Registration from Tax Registration by country



Source: Adapted by authors from doingbusiness.org

Figure 2: Impact evaluation design

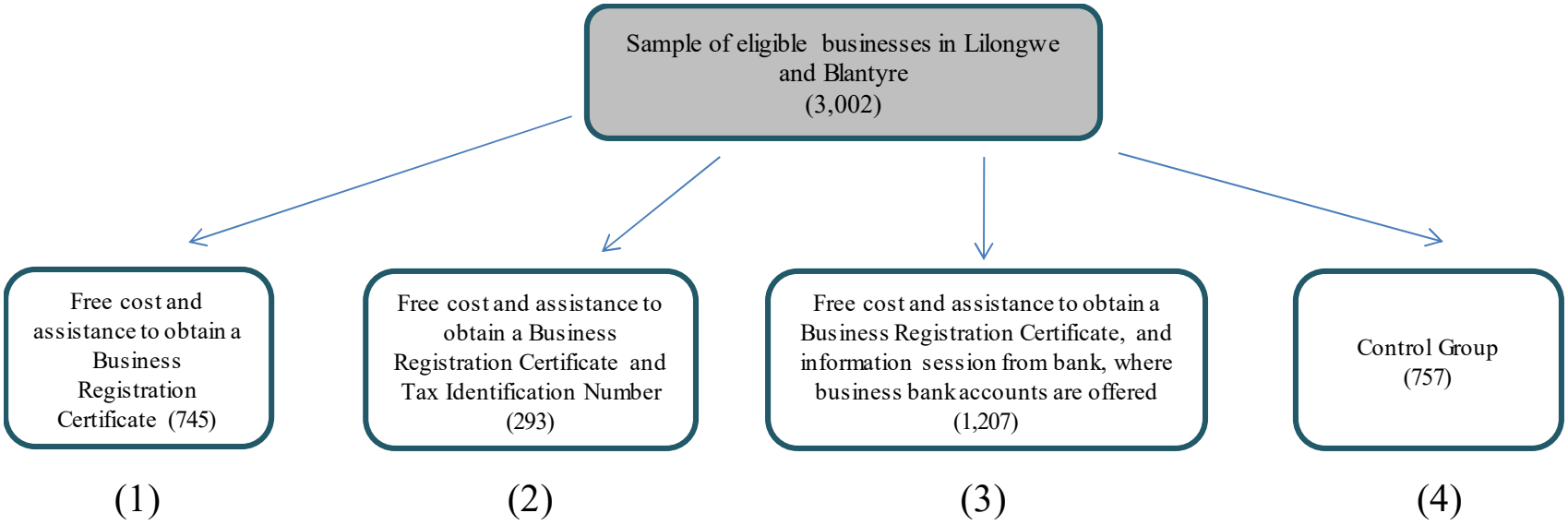


Table 1 - Benefits of becoming formal in Malawi

Benefits	Business Registration Certificate (BRC)	Taxpayer's Identification Number (TPIN)	City Council licenses
Open business bank account	yes		
Apply for bank loan	yes		
Register land in the name of business	yes	needed if seller of land (show tax clearance for capital gains)	
Export license	yes		
Apply to private tenders	Most cases not necessary, helpful in specific cases for large firms		
Required to apply for government's matching grants and business development services	yes		
Access to ODPP (government procurement system)	yes, but also need the TPIN and in some cases the tax clearance	yes, with BRC	
Lower harassment by police/govt officials	yes for MoIT, but not common at all	yes for taxes, but not common for those without a TPIN	yes, within the main streets, the harassment is common as the municipality needs the money, including locking the premises if firm doesn't pay
Apply for being member of Malawian Chamber of Commerce (MCCCI)	yes		
Provide invoices to customers for tax purposes		yes	

Note: Providing receipts to customers – in some countries mentioned as a potential benefit – is not seen as requiring any of these steps of formalization in Malawi.

Table 2: Baseline Characteristics by Treatment Status

Balance at baseline	**Treatment groups**				**Differences**
across treatment status	(1) BRC	(2) BRC + TPIN	(3) BRC+IS+BBA	Control	F test
N	745	293	1,207	757	3,002
Strata variables					
Female	39.1	39.9	40.3	39.8	0.09
Lilongwe	51.0	49.5	50.2	48.0	0.52
Large firm (Revenues>median)	49.4	53.6	47.7	51.1	1.43
Age of firm	8.0	7.7	7.7	8.3	1.15
High capture	37.6	35.2	35.6	36.3	0.31
Manufacturing	6.3	6.8	6.3	7.3	0.27
Retail	71.1	72.0	71.3	70.4	0.11
Services	22.6	21.2	22.4	22.3	0.09
Firm Characteristics					
Owner started business	89.7	88.7	91.9	91.2	1.40
Owns space where operates business	36.2	31.1	32.6	35.3	1.45
# new products introduced past 12 months	0.6	0.8	0.7	0.5	1.39
Business with access to electricity	26.9	25.3	28.1	25.1	0.84
# of competitors	14.1	13.8	15.2	14.6	0.23
Time to nearest bank (minutes)	21.3	18.9	20.5	21.3	3.26**
Individual Characteristics					
Owner age	33.6	32.8	33.3	34.0	1.76
Married / Living with someone	78.9	79.9	80.0	81.5	0.54
HH decision making index (0-100)	83.5	83.7	84.3	84.9	0.63
Main provider of income to household	77.6	76.0	78.0	74.7	1.01
Literate	92.7	92.8	90.7	91.0	1.14
Primary school completed is max education	34.8	34.8	35.9	36.5	0.20
Secondary school completed is max education	23.9	26.3	24.3	24.0	0.23
Higher education completed	5.5	4.8	5.4	5.2	0.09
Financial Literacy knowledge (0-1)	0.44	0.42	0.43	0.43	1.48
Spouse Entrepreneur	28.9	28.3	27.1	30.9	1.10
Spouse in Wage Employment	14.9	11.6	16.1	14.5	1.47
Primary outcomes					
Has TPIN	5.4	5.5	4.8	5.4	0.18
Has city council license	56.8	58.0	54.0	56.0	0.80
Revenue last week winsorized (US$)	246	233	248	248	0.23
Revenue last month winsorized (US$)	873	842	902	912	0.34
Profit last week winsorized (US$)	58	58	57	58	0.04

Profit last month winsorized (US$)	201	208	209	206	0.19
Secondary outcomes					
Total workers (including the owner)	2.0	2.0	2.1	2.0	0.17
Capital (US$): Fixed Assets	829	745	1,049	1,068	2.00
Assets (US$): Fixed Assets, Inventories & Cash	1,684	1,555	2,125	1,936	2.79**
Access to Finance					
Borrowed in the past	36.2	38.2	35.7	39.4	1.01
Amount of a recent loan (US$)	6.7	28.2	5.6	6.6	0.43
Has bank account	58.8	57.0	56.2	55.8	0.59
Has bank account in name of business	2.0	2.1	1.8	2.4	0.23
Uses any account just for business purposes	5.0	4.4	3.7	4.2	0.66
Saves at home	28.7	27.0	28.2	29.5	0.26
ROSCA_SACCO	6.9	9.9	7.5	8.7	1.14
Banks savings	56.0	55.0	53.7	52.8	0.57
Saved amount (US$)	237	224	275	224	1.15
Saved amount at bank (US$)	217	196	245	202	0.97
Takes business money whenever for HH	77.5	80.2	78.2	79.3	0.44
Inspections and Business Practices					
Identifies benefit(s) of business registration	69.9	73.4	71.8	72.7	0.63
Was inspected by municipality before	14.9	15.7	15.1	15.9	0.12
Asked for bribe	3.8	4.8	5.2	4.6	0.80
Sexually harassed	5.5	4.8	6.5	6.1	0.57
Other harassment	9.7	4.4	10.8	9.5	6.30***
Provides receipts	15.3	17.1	18.5	19.2	1.63
Has written budget	2.8	2.1	1.7	3.3	2.04
Keeps financial records	54.1	52.2	56.1	56.3	0.72
Advertises	5.8	3.4	6.1	5.3	1.53
Joint Orthogonality Test:	0.67	0.90	0.93		

Note: Variables "without outliers" are winzorized at 99th percentile. F test is calculated from regressions that include only treatment groups dummies (where the dummy excluded is the control group variable). In each case the dependent variable is the row variable. *, ** and *** denote significant at the 1%, 5%, and 10% levels, respectively.

Table 3: Take-up rates

	Received BRC with our assistance					Received TPIN with our assistance			Opened a BBA after information session		
	Full Sample	Male	Female	Lilongwe	Blantyre	Full Sample	Male	Female	Full Sample	Male	Female
Treatment 1: BRC	75.4	76.7	73.4	75.9	74.9						
Treatment 2: BRC + TPIN	68.9	76.2	58.0	70.1	67.8	4.1	4.0	4.3			
Treatment 3: BRC+IS+BBA	84.9	86.1	82.9	84.9	84.9				64.2	65.7	61.7
p-value: Treatment 1=Treatment 2	0.037	0.876	0.003	0.184	0.107						
p-value: Treatment 1=Treatment 3	0.000	0.000	0.002	0.001	0.000						
p-value: Male=Female for Treatment 1		0.315									
p-value: Male=Female for Treatment 2		0.001					0.909				
p-value: Male=Female for Treatment 3		0.142								0.153	
p-value: Lilongwe=Blantyre for Treatment 1				0.759							
p-value: Lilongwe=Blantyre for Treatment 2				0.661							
p-value: Lilongwe=Blantyre for Treatment 3				1.000							

Notes: BRC denotes assistance obtaining a business registration certificate; BRC+TPIN denotes assistance with a BRC and with getting a tax-payer identification number (TPIN); BRC+IS+BBA denotes assistance with a BRC, along with a bank information session and the offer of a business bank account (BBA) at the end of this information session (IS). All specifications include randomization strata dummies.

Table 4: Impacts on Formalization

	Z score	BRC	TPIN	City council
Treatment 1: BRC	0.676***	0.515***	0.012*	0.017
	(0.031)	(0.016)	(0.007)	(0.018)
	0.000	0.000	0.089	0.358
	0.001	*0.001*	*0.083*	*0.219*
Treatment 2: BRC + TPIN	0.665***	0.532***	0.000	-0.007
	(0.041)	(0.024)	(0.009)	(0.024)
	0.000	0.000	0.965	0.766
	0.001	*0.001*	*0.475*	*0.412*
Treatment 3: BRCE + IS + BBA	0.824***	0.636***	0.008	0.015
	(0.025)	(0.013)	(0.006)	(0.016)
	0.000	0.000	0.194	0.359
	0.001	*0.001*	*0.171*	*0.219*
Control group mean	0.000	0.081	0.056	0.641
Sample size	10,900	10,900	10,900	10,900
p-value: Treatment 1 = Treatment 2	0.811	0.519	0.179	0.314
p-value: Treatment 1 = Treatment 3	0.000	0.000	0.561	0.909
p-value: Treatment 2 = Treatment 3	0.000	0.000	0.323	0.322
p-value test of equality	0.000	0.000	0.273	0.603
p-value test of equality of treatment effects over time				
Treatment 1	0.000	0.002	0.554	0.237
Treatment 2	0.000	0.098	0.369	0.809
Treatment 3	0.000	0.001	0.044	0.304

Notes: Data pooled for all four follow-up surveys. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. The Z score index is constructed following Kling, Liebman, and Katz (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (*q-values* in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.

Table 5: Gender Heterogeneity in Impacts on Formalization

	Z score	BRC	TPIN	City council
Treatment 1: BRC	0.728***	0.543***	0.020**	0.025
	(0.039)	(0.021)	(0.009)	(0.023)
	0.000	0.000	0.024	0.267
	0.001	*0.001*	*0.032*	*0.155*
Treatment 2: BRC + TPIN	0.796***	0.607***	0.010	0.024
	(0.050)	(0.031)	(0.011)	(0.029)
	0.000	0.000	0.388	0.418
	0.001	*0.001*	*0.223*	*0.223*
Treatment 3: BRCE + IS + BBA	0.881***	0.667***	0.015*	0.026
	(0.032)	(0.017)	(0.008)	(0.020)
	0.000	0.000	0.050	0.201
	0.001	*0.001*	*0.054*	*0.119*
Treatment 1: BRC * Female	-0.131**	-0.071**	-0.020	-0.021
	(0.063)	(0.033)	(0.014)	(0.039)
	0.037	0.033	0.144	0.594
	0.042	*0.040*	*0.095*	*0.247*
Treatment 2: (BRC + TPIN) * Female	-0.334***	-0.191***	-0.026	-0.079
	(0.084)	(0.049)	(0.017)	(0.050)
	0.000	0.000	0.129	0.117
	0.001	*0.001*	*0.095*	*0.094*
Treatment 3: (BRCE + IS + BBA) * Female	-0.144***	-0.077***	-0.017	-0.028
	(0.051)	(0.026)	(0.012)	(0.034)
	0.005	0.003	0.165	0.418
	0.008	*0.007*	*0.101*	*0.223*
Control group mean: Male	0.031	0.091	0.051	0.680
Control group mean: Female	-0.047	0.065	0.064	0.583
p-value: Treatment 1 = Treatment 2 for males	0.219	0.065	0.425	0.960
p-value: Treatment 1 = Treatment 3 for males	0.000	0.000	0.572	0.962
p-value: Treatment 2 = Treatment 3 for males	0.092	0.062	0.671	0.930
p-value: Treatment 1 = Treatment 2 for females	0.076	0.208	0.211	0.145
p-value: Treatment 1 = Treatment 3 for females	0.008	0.000	0.842	0.824
p-value: Treatment 2 = Treatment 3 for females	0.000	0.000	0.239	0.161
p-value test of equality for males	0.000	0.000	0.098	0.596

p-value test of equality for females	0.000	0.000	0.575	0.493

Notes: Data pooled for all four follow-up surveys. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. Panel B includes a dummy for "female". The Z score index is constructed following Kling, Liebman, and Katz (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (*q-values* in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.

Table 6: Impacts on Business Performance and Employment

	Z score[a]	Sales (U$S) winzorized	Profits (U$S) winzorized	Total employees excluding owners	Average worker daily wage (US$)	Wage Bill (US$)
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment 1: BRC	0.008	19.685	1.863	-0.029	-0.011	2.144
	(0.029)	(43.448)	(7.238)	(0.046)	(0.057)	(1.907)
	0.789	0.651	0.797	0.535	0.849	0.261
	1.000	*1.000*	*1.000*	1.000	*1.000*	*1.000*
Treatment 2: BRC + TPIN	0.032	44.525	4.407	-0.069	-0.052	0.657
	(0.040)	(58.201)	(9.787)	(0.057)	(0.063)	(1.877)
	0.433	0.444	0.653	0.226	0.407	0.726
	1.000	*1.000*	*1.000*	1.000	*1.000*	*1.000*
Treatment 3: BRCE + IS + BBA	0.106***	130.636***	22.977***	0.028	0.073	2.532*
	(0.028)	(40.630)	(6.924)	(0.044)	(0.075)	(1.417)
	0.000	0.001	0.001	0.515	0.332	0.074
	0.002	*0.004*	*0.004*	1.000	*1.000*	*1.000*
Control group mean	0.000	668	152	0.957	0.384	17.514
Sample size	10,900	10,900	10,900	10,900	8,070	10,900
p-value: Treat1 = Treat 2	0.558	0.672	0.795	0.458	0.507	0.515
p-val: Treat 1 = Treat 3	0.001	0.008	0.002	0.148	0.258	0.843
p-val: Treat 2 = Treat 3	0.063	0.130	0.053	0.056	0.124	0.325
p-value test of equality	0.000	0.007	0.003	0.214	0.493	0.299
p-value test of equality of treatment effects over time						
Treatment 1	0.817	0.857	0.598	0.255	0.636	0.075
Treatment 2	0.833	0.759	0.621	0.630	0.081	0.839
Treatment 3	0.200	0.346	0.028	0.943	0.521	0.865

Notes: Data pooled for all four follow-up surveys. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. The Z score index is constructed following Kling et al. (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.

a Z-score includes five different measures of sales and profits including unwinsorized and winsorized weekly and monthly outcomes, and inverse hyperbolic sine of monthly outcome.

Table 7: Gender Heterogeneity in Impacts on Business Performance

	Z score [a]	Sales (U$S) winzorized	Profits (U$S) winzorized
	Data pooled for all follow-up surveys		
Treatment 1: BRC	-0.019	-34.123	-6.876
	(0.041)	(62.204)	(9.971)
	0.640	0.583	0.491
	1.000	*1.000*	*1.000*
Treat 2: BRC + TPIN	0.024	-9.074	0.330
	(0.056)	(80.126)	(13.651)
	0.666	0.910	0.981
	1.000	*1.000*	*1.000*
Tr 3: BRCE + IS + BBA	0.116***	137.709**	23.024**
	(0.040)	(60.007)	(9.758)
	0.004	0.022	0.018
	0.072	*0.142*	*0.142*
Treat 1: BRC * Female	0.069	136.729*	22.194
	(0.056)	(82.646)	(14.154)
	0.217	0.098	0.117
	0.743	*0.541*	*0.541*
Treat 2: (BRC + TPIN) * Female	0.019	136.831	10.344
	(0.079)	(113.846)	(18.978)
	0.808	0.229	0.586
	1.000	*0.743*	*1.000*
Treat 3: (BRCE + IS + BBA) * Female	-0.025	-17.196	-0.059
	(0.054)	(76.049)	(13.430)
	0.639	0.821	0.996

	1.000	*1.000*	*1.000*
Control group: Male	0.115	822.898	177.783
Control group: Female	-0.174	434.831	114.324
p-value: Treat 1 = Treat 2 for males	0.434	0.750	0.589
p-value: Treat 1 = Treat 3 for males	0.001	0.003	0.001
p-value: Treat 2 = Treat 3 for males	0.092	0.057	0.087
p-value: Treat 1 = Treat 2 for females	0.912	0.771	0.738
p-value: Treat 1 = Treat 3 for females	0.299	0.755	0.459
p-value: Treat 2 = Treat 3 for females	0.405	0.930	0.356
p-value test of equality for males	0.003	0.015	0.010
p-value test of equality for females	0.094	0.041	0.091

Notes: Data pooled for all follow-up surveys. Sales and profits are converted from local currency to US dollars. Variables are winsorized at the 99th percentile. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round and for "female". Z score index constructed following Kling, Liebman, and Katz (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Clustered standard errors by firms in parantheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.
a Z-score includes different measures of sales and profits including weekly outcomes, non-winzorized outcomes, and inverse hyperbolic sine.

Table 8: Channels of impacts on firms

	Z score on inspections and harassment from state	Z score on financial services	Has a business bank account	Belongs to Malawian Chamber of Commerce	Has export license	Participates in Gov't tenders	Access to a government program	Location of the business has changed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment 1: BRC	-0.002	0.026	0.017**	0.002	-0.003	-0.004	-0.001	-0.009
	(0.030)	(0.022)	(0.008)	(0.002)	(0.003)	(0.008)	(0.003)	(0.012)
	0.939	0.240	0.031	0.461	0.392	0.570	0.850	0.432
	1.000	*1.000*	*0.198*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Treatment 2: BRC + TPIN	0.001	0.018	0.010	0.002	-0.002	0.003	0.005	0.008
	(0.038)	(0.028)	(0.011)	(0.003)	(0.005)	(0.011)	(0.005)	(0.016)
	0.985	0.528	0.338	0.465	0.674	0.802	0.234	0.617
	1.000	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Treatment 3: BRCE + IS + BBA	0.027	0.621***	0.390***	0.008***	0.007*	0.003	0.001	0.009
	(0.027)	(0.023)	(0.012)	(0.002)	(0.003)	(0.007)	(0.003)	(0.011)
	0.314	0.000	0.000	0.001	0.060	0.664	0.679	0.401
	1.000	*0.001*	*0.001*	*0.005*	*0.314*	*1.000*	*1.000*	*1.000*
Control group mean	0.000	0.000	0.041	0.006	0.019	0.073	0.010	0.127
Sample size	10,900	9,438	10,900	10,900	10,900	10,900	10,900	10,900
p-value: Treat 1 = Treat 2	0.936	0.769	0.520	0.844	0.824	0.489	0.195	0.282
p-value: Treat 1 = Treat 3	0.274	0.000	0.000	0.010	0.004	0.279	0.536	0.080
p-value: Treat 2 = Treat 3	0.457	0.000	0.000	0.078	0.058	0.954	0.324	0.954
p-value test of equality	0.626	0.000	0.000	0.007	0.026	0.739	0.604	0.344
p-value test of equality of treatment effects over time								
Treatment 1	0.037	0.144	0.037	0.621	0.121	0.353	0.819	0.486
Treatment 2	0.210	0.444	0.634	0.388	0.837	0.892	0.095	0.835
Treatment 3	0.487	0.000	0.000	0.410	0.320	0.821	0.154	0.387

Notes: Data pooled for all follow-up surveys, unless otherwise noted. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. Z score index constructed following Kling, Liebman, and Katz (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.
a Z-score on inspection and harassment from state includes business has not received an inspection from municipality, taxes authority or another inspector during the past 6 months, owner has not experienced requests for bribes in the past 6 months, owner is confident to say no to bribes, business has not received threats to shut down, business has not received threats to confiscation of property or merchandise, owner has not been sexually harassed or has not received any other harassment.
b Z-score on financial services includes six variables. Those are owner has a bank account, has a business bank account, owner use an account for business purposes, owner does not save at hombre or ROSCA or SACCO, owner saves at bank.
c Sample size of z-score on financial services is 9,438 because businesses which have closed during the program are excluded. For several savings outcomes for which it is possible that individuals are saving even without operating a business, we use the sample of firms still in business since we lack data on these outcomes for those whose businesses have closed.

Table 9: Impacts on Use of Finance

	Z score on use of finance	Amount that business can borrow in 2 weeks (U$S)	Amount borrowed (U$S)	Bank contacted the firm	Has insurance for business	Amount in bank savings (U$S)	High relative savings	Does not take business money for the household	Business keeps financial records
Treatment 1: BRC	0.014	-10.174	13.380	0.002	0.004	-17.560	-0.002	-0.010	0.032*
	(0.020)	(34.061)	(14.912)	(0.013)	(0.003)	(23.705)	(0.017)	(0.014)	(0.017)
	0.487	0.765	0.370	0.888	0.202	0.459	0.918	0.491	0.067
	0.733	*1.000*	*0.722*	*1.000*	*0.494*	*0.733*	*1.000*	*0.733*	*0.212*
Treatment 2: BRC + TPIN	0.006	-31.505	18.367	0.014	0.008	15.738	0.003	-0.007	-0.026
	(0.030)	(46.437)	(19.850)	(0.018)	(0.005)	(34.799)	(0.023)	(0.019)	(0.022)
	0.832	0.498	0.355	0.431	0.129	0.651	0.914	0.719	0.243
	1.000	*0.733*	*0.722*	*0.733*	*0.324*	*0.985*	*1.000*	*1.000*	*0.532*
Treatment 3: BRCE + IS + BBA	0.203***	91.969***	19.137*	0.090***	0.079***	44.334	0.030*	0.057***	0.081***
	(0.021)	(33.942)	(11.392)	(0.013)	(0.005)	(41.621)	(0.016)	(0.013)	(0.015)
	0.000	0.007	0.093	0.000	0.000	0.287	0.056	0.000	0.000
	0.001	*0.026*	*0.278*	*0.001*	*0.001*	*0.601*	*0.204*	*0.001*	*0.001*
Control group mean	0.000	570.947	79.003	0.100	0.009	178.966	0.527	0.287	0.457
Sample size	10900	10900	10900	5350	10900	10900	10900	10900	10900
p-value: Treatment 1 = Treatment 2	0.800	0.634	0.822	0.497	0.482	0.326	0.851	0.867	0.010
p-value: Treatment 1 = Treatment 3	0.000	0.001	0.705	0.000	0.000	0.116	0.039	0.000	0.002
p-value: Treatment 2 = Treatment 3	0.000	0.006	0.969	0.000	0.000	0.544	0.207	0.000	0.000
p-value test of equality	0.000	0.002	0.372	0.000	0.000	0.386	0.113	0.000	0.000
Treatment 1	0.769	0.189	0.742	0.940	0.869	0.794	0.377	0.750	0.435
Treatment 2	0.502	0.322	0.574	0.173	0.740	0.047	0.988	0.777	0.166
Treatment 3	0.867	0.691	0.160	0.738	0.471	0.207	0.954	0.581	0.278

Notes: Data pooled for all follow-up surveys, unless otherwise noted. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. Z score index constructed following Kling, Liebman, and Katz (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.
a Z-score on use of finance includes seven variables. Those are the amount that business can borrow in 2 weeks (U$S), the amount borrowed (U$S), the owner has insurance for business, the amount in bank savings (U$S), a high relative savings, owner does not take business money for the household, business keeps financial records.
b High relative savings is a dummy that takes value 1 if the owner total savings is over the median of total savings at baseline and 0 otherwise.
c Sample size of bank contacted the firm includes only follow-up 3 and 4.

Table 10: Impacts on Business Practices, Capital Inputs, and Innovation

	Inputs costs (US$)	Firm assets(US$) winzorized	Business introduced new product/service in the past 6 months	Business uses advertisement	Business uses marketing and promotion	Business practices index (follow-up 4 only)
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment 1: BRC	15.017	-62.952	-0.001	-0.007	0.003	0.001
	(42.605)	(124.446)	(0.010)	(0.006)	(0.004)	(0.013)
	0.725	0.613	0.938	0.270	0.512	0.950
	1.000	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Treatment 2: BRC + TPIN	360.759	-102.887	-0.021*	0.001	0.012*	-0.010
	(354.573)	(183.365)	(0.013)	(0.009)	(0.006)	(0.017)
	0.309	0.575	0.100	0.906	0.055	0.559
	1.000	*1.000*	*0.653*	*1.000*	*0.605*	*1.000*
Treatment 3: BRCE + IS + BBA	123.154***	-10.154	0.017*	0.004	-0.002	0.019
	(38.764)	(123.428)	(0.009)	(0.006)	(0.003)	(0.012)
	0.002	0.934	0.066	0.452	0.594	0.116
	0.028	*1.000*	*0.605*	*1.000*	*1.000*	*0.653*
Control group mean	411	2359	0.134	0.040	0.020	0.393
Sample size	10,900	10900	10,900	10,900	10,900	2,686
p-value: Treatment 1 = Treatment 2	0.343	0.823	0.114	0.383	0.136	0.526
p-value: Treatment 1 = Treatment 3	0.017	0.648	0.055	0.054	0.211	0.132
p-value: Treatment 2 = Treatment 3	0.499	0.602	0.002	0.701	0.022	0.079
p-value test of equality	0.011	0.911	0.012	0.292	0.112	0.179
p-value test of equality of treatment effects over time						
Treatment 1	0.722	0.842	0.730	0.813	0.351	0.950
Treatment 2	0.272	0.228	0.712	0.641	0.614	0.559
Treatment 3	0.995	0.315	0.660	0.298	0.250	0.116

Notes: Data pooled for all four follow-up surveys, except column 6. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (*q-values* in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.

Table 11: Impacts on Taxes and Trust in the State

	Taxes and market fees costs (US$)	Firm provides formal receipts	Trust in government institutions (z-score)[a]	Trust in institutions dealing with private sector (z-score)[b]
Treatment 1: BRC	-0.140	-0.010	-0.006	0.006
	(0.211)	(0.014)	(0.029)	(0.030)
	0.505	0.456	0.841	0.840
	1.000	*1.000*	*1.000*	*1.000*
Treatment 2: BRC + TPIN	-0.342	-0.015	-0.013	-0.014
	(0.237)	(0.018)	(0.038)	(0.039)
	0.149	0.402	0.729	0.727
	1.000	*1.000*	*1.000*	*1.000*
Treatment 3: BRCE + IS + BBA	0.398	0.012	-0.023	-0.008
	(0.304)	(0.013)	(0.026)	(0.027)
	0.191	0.356	0.365	0.753
	1.000	*1.000*	*1.000*	*1.000*
Control group mean	3.383	0.211	0.000	0.000
Sample size	10,900	10,900	10,900	10,900
p-value: Treatment 1 = Treatment 2	0.289	0.784	0.846	0.619
p-value: Treatment 1 = Treatment 3	0.048	0.080	0.496	0.597
p-value: Treatment 2 = Treatment 3	0.013	0.117	0.774	0.887
p-value test of equality	0.085	0.234	0.814	0.939
p-value test of equality of treatment effects over time				
Treatment 1	0.803	0.559	0.300	0.448
Treatment 2	0.997	0.779	0.710	0.937
Treatment 3	0.189	0.668	0.656	0.987

Notes: Data pooled for all follow-up surveys, unless otherwise noted. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round (except for trust in institutions dealing with private sector which only includes dummies for survey round). Z score index constructed following Kling, Liebman, and Katz (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.
a Z-score on trust in government institutions includes trust in courts, police, and national government.
b Z-score on trust in institutions dealing with private sector includes trust in city council and tax authorities. There is not baseline information for both variables.

ONLINE APPENDIX

Appendix 1: Gender Differences at Baseline

Appendix Table 1 compares the baseline characteristics of male- and female-owned enterprises in our sample. We summarize some of these details in the main text, and discuss further characteristics here.

Male-owned enterprises were more likely to operate in a space owned by the entrepreneur, to regularly advertise, to have a written business plan, to provide receipts to customers, to have a larger network of contacts, to pay city council (market) fees, and to be able to identify the benefits of business registration.

In terms of harassment, while men were more likely to have been asked for a business-related bribe in the past 12 months (5.5 percent versus 3.4 percent for women), women were significantly more likely to have been sexually harassed while on the job (11 percent for women versus 3 percent for men).

Education levels are similar by gender, 92 percent of the sample is literate, 65 percent have completed primary school or higher, but only 29 percent have completed secondary school. Men had, on average, a higher score than women on an index of financial literacy questions[24]. Male entrepreneurs were also more likely to be married or to be living with someone (86 percent vs 71 percent for females), and to have a more significant role in the household decision making. Female business owner's spouses were much more likely than male's to be in wage employment (30 percent versus 5 percent).

In our sample, women were more likely to use saving mechanisms than men, including bank accounts (60 percent for women vs 55 percent for men), but also informal mechanisms such as ROSCAs and SACCOs[25] (12 percent vs 5 percent). Mixing of household and business finances is common, with 78.5 percent saying they take business money whenever required for household needs[26].

On average, the most recent loans had an initial maturity of less than five months for both male and female-owned enterprises. For firms that obtained credit in the past, 42 percent of the most recent loans did not require collateral. When collateral was needed, business owners primarily used cash deposits, followed by household assets and

[24] This index comprises nine questions, such as "Suppose you need to take a loan of Malawian Kwacha (MWK) 10,000 and you have two opportunities. One is to pay an interest rate of MWK 100 every month for twelve months, and the other is pay an interest rate of MWK 1,200 at the end of one year. Which one has a higher interest rate?"
[25] ROSCA - Rotating Savings and Credit Association; SACCO - Savings and Credit Co-operative.
[26] The question asked was: "Do you take money whenever needed (every day, every other day, etc) from the business to pay your own or your family expenses?".

group-lending. These findings confirm that most loans were small in size. The proportion of entrepreneurs having been denied credit was similar for men and women - 19 and 17 percent respectively of male and female entrepreneurs that have applied in the past 12 months. Taken together, these baseline data do not suggest that women are more disadvantaged than men when it comes to access to finance, especially given that female-owned businesses are smaller on average than male-owned firms.

Appendix Table 1: Descriptive information at baseline by Gender

	Full sample	St Dev	Male	Female	Diff
N	*3,002*		*1,807*	*1,195*	
Firm Characteristics					
Manufacturing	6.6	25.0	9.4	2.3	7.1***
Retail	71.1	45.0	76.6	62.8	13.7***
Services	22.3	42.0	14.0	34.8	-20.8***
Number of people working in business	2.0	1.3	2.0	2.0	0.0
Number of owners	1.1	0.4	1.1	1.1	0.0
Age of firm	7.9	7.1	8.9	6.5	2.3***
Lilongwe-based	49.8	50.0	47.4	53.4	-6.0***
Owner started business	90.8	28.9	92.1	88.9	3.3***
Owns space where operates business	34.0	47.4	35.6	31.7	3.9**
# new products introduced past 12 months	0.7	2.7	0.6	0.8	-0.2**
Advertises	5.5	22.9	6.6	3.9	2.7***
Has written business plan	16.6	37.2	17.7	14.8	2.9**
Has written budget	2.4	15.3	2.4	2.3	0.1
Keeps financial records	55.3	49.7	55.4	55.1	0.3
Provides receipts	17.7	38.2	23.5	9.0	14.4***
Business with access to electricity	26.7	44.3	24.0	30.9	-6.9***
Number of customers past month	945.5	1,293.4	1,031.5	815.8	215.6***
Network contacts any sector	105.8	275.5	114.7	92.3	22.4**
# of competitors	14.6	35.0	15.0	14.1	0.9
Individual Characteristics					
Owner age	33.5	9.0	33.4	33.6	-0.2
Married / Living with someone	80.1	39.9	86.1	71.0	15.1***
HH decision making index (0-100)	84.2	19.8	86.7	80.4	6.3***
Main provider of income to household	76.9	42.2	94.9	49.6	45.3***
Literate	91.5	27.9	92.9	89.3	3.6***
Primary school completed is max education	35.6	47.9	36.6	34.2	2.4
Secondary school completed is max education	24.3	42.9	23.9	25.0	-1.2
Higher education completed	5.3	22.4	4.5	6.5	-2.0**
High capture	36.2	48.1	35.8	37.0	-1.2
Financial Literacy knowledge (0-1)	0.43	0.2	0.44	0.42	0.0***
Mother Entrepreneur	21.5	41.1	17.9	26.9	-9.1***
Mother in Wage Employment	5.9	23.5	4.5	8.0	-3.5***
Father Entrepreneur	21.1	40.8	22.0	19.7	2.2
Father in Wage Employment	27.1	44.5	23.1	33.2	-10.1***
Spouse Entrepreneur	28.6	45.2	30.4	25.9	4.6***
Spouse in Wage Employment	15.0	35.7	4.9	30.1	-25.2***
Financials (US$)					
Revenue past month	1,160.5	8,499.2	1,464.2	701.2	763.0**
Profit past month	215.8	314.4	246.7	169.2	77.4***
Business assets	1,912.1	4,646.9	2,174.8	1,515.0	659.7***
Fixed Assets	969.6	3,358.7	1,093.1	782.8	310.3**
Financial services					
Any account (formal or informal)	62.4	48.4	58.4	68.5	-10.0***
Has bank account	56.8	49.5	54.6	60.2	-5.6***
Has bank account in name of business	2.0	14.1	2.1	1.9	0.2
Uses any ccount just for business purposes	4.2	20.1	3.7	4.9	-1.2
ROSCA_SACCO	7.9	27.0	4.9	12.4	-7.5***
Saves at home	28.5	45.2	31.9	23.3	8.6***
Borrowed in the past	37.0	48.3	35.2	39.7	-4.6***

Bank loan in the past	7.3	26.1	6.00	9.3	-3.3***
Debt Outstanding (US$)	33.6	200.2	32.6	35.1	-2.5
Takes business money whenever for HH	78.5	41.1	77.5	80.0	-2.5*
Time to nearest bank (minutes)	20.7	13.9	20.6	20.9	-0.3
Formality					
Pays city council fees / market fees	55.6	49.7	57.2	53.2	3.9**
Identifies benefit(s) of business registration	71.7	45.0	74.0	68.2	5.8***
Was inspected by municipality before	15.3	36.0	16.0	14.1	1.9
Harassment					
Asked for bribe	4.7	21.0	5.5	3.4	2.0***
Sexual harassment in business	6.0	23.7	2.8	10.8	-8.0***

*, ** and *** denote significant at the 1%, 5% and 10% levels respectively.

Appendix Table 2: Attrition and Business Closure

	Attrition					Business Closure				
	Follow-up 1	Follow-up 2	Follow-up 3	Follow-up 4	All	Follow-up 1	Follow-up 2	Follow-up 3	Follow-up 4	All
Panel A: Full sample										
Treatment 1: BRC	-0.020*	-0.005	-0.035**	-0.022	-0.020***	0.009	-0.013	0.031	-0.009	0.005
	(0.012)	(0.015)	(0.016)	(0.016)	(0.007)	(0.016)	(0.020)	(0.019)	(0.019)	(0.009)
Treatment 2: BRC + TPIN	-0.007	-0.006	-0.017	-0.026	-0.014	-0.014	0.001	0.026	0.001	0.003
	(0.016)	(0.020)	(0.022)	(0.021)	(0.010)	(0.020)	(0.027)	(0.026)	(0.026)	(0.012)
Treatment 3: BRC + IS + BBA	-0.006	0.002	-0.017	-0.012	-0.008	-0.013	-0.018	0.002	-0.016	-0.011
	(0.011)	(0.014)	(0.015)	(0.015)	(0.007)	(0.014)	(0.018)	(0.017)	(0.017)	(0.008)
Control group mean	0.066	0.095	0.129	0.119	0.102	0.095	0.171	0.135	0.156	0.139
Sample size	3,002	3,002	3,002	3,002	12,008	2,830	2,720	2,664	2,686	10,900
p-value: Treatment 1 = Treatment 2	0.406	0.952	0.401	0.834	0.508	0.246	0.616	0.854	0.692	0.914
p-value: Treatment 1 = Treatment 3	0.176	0.603	0.194	0.465	0.059	0.118	0.753	0.104	0.682	0.062
p-value test of equality	0.351	0.947	0.194	0.472	0.044	0.392	0.729	0.287	0.784	0.223

Notes: "All" includes dummies for survey round. Also, specifications include randomization strata dummies. Robust standard errors in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.

Appendix Table 3: Impacts over time on having BRC

	BRC				
	Follow-up 1	Follow-up 2	Follow-up 3	Follow-up 4	All
Panel A: Full sample					
Treatment 1: BRC	0.544***	0.543***	0.467***	0.504***	0.515***
	(0.021)	(0.021)	(0.022)	(0.022)	(0.016)
	0.000	0.000	0.000	0.000	0.000
	0.001	*0.001*	*0.001*	*0.001*	*0.001*
Treatment 2: BRC + TPIN	0.569***	0.538***	0.487***	0.534***	0.532***
	(0.031)	(0.031)	(0.032)	(0.031)	(0.024)
	0.000	0.000	0.000	0.000	0.000
	0.001	*0.001*	*0.001*	*0.001*	*0.001*
Treatment 3: BRCE + IS + BBA	0.680***	0.644***	0.610***	0.612***	0.636***
	(0.016)	(0.017)	(0.018)	(0.018)	(0.013)
	0.000	0.000	0.000	0.000	0.000
	0.001	*0.001*	*0.001*	*0.001*	*0.001*
Control group mean	0.061	0.066	0.105	0.093	0.081
Sample size	2830	2720	2664	2686	10900
p-value: Treatment 1 = Treatment 2	0.481	0.885	0.584	0.381	0.519
p-value: Treatment 1 = Treatment 3	0.000	0.000	0.000	0.000	0.000
p-value: Treatment 2 = Treatment 3	0.000	0.001	0.000	0.016	0.000
p-value test of equality	0.000	0.000	0.000	0.000	0.000
p-value test of equality of treatment effects over time					
Treatment 1	n.a.	n.a.	n.a.	n.a.	0.002
Treatment 2	n.a.	n.a.	n.a.	n.a.	0.098
Treatment 3	n.a.	n.a.	n.a.	n.a.	0.001

Notes: Specifications include strata dummies, a variable representing the initial outcome at baseline, and a variable indicating missing data at baseline. "All" has data pooled for all follow-up surveys. "All" includes dummies for survey round. Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.

Appendix Table 4: Round by Round Impacts on Business Performance

	Z score[a]				Sales (U$S) winzorized				Profits (U$S) winzorized			
	F1	F2	F3	F4	F1	F2	F3	F4	F1	F2	F3	F4
Treatment 1: BRC	-0.014	0.002	0.017	0.028	-10.013	5.645	50.923	33.741	-7.297	1.439	6.717	7.451
	(0.039)	(0.041)	(0.045)	(0.040)	(47.819)	(63.883)	(69.927)	(66.851)	(8.150)	(9.689)	(11.357)	(12.506)
	0.710	0.958	0.712	0.489	0.834	0.930	0.467	0.614	0.371	0.882	0.554	0.551
	1.000	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Treatment 2: BRC + TPIN	0.010	0.058	0.021	0.043	15.357	69.064	97.903	1.375	-4.411	-0.389	7.560	15.945
	(0.054)	(0.064)	(0.054)	(0.052)	(63.846)	(93.253)	(95.833)	(82.555)	(11.304)	(12.454)	(14.553)	(16.490)
	0.848	0.361	0.704	0.409	0.810	0.459	0.307	0.987	0.696	0.975	0.603	0.334
	1.000	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Treatment 3: BRCE + IS + BBA	0.053	0.144***	0.105**	0.128***	57.653	136.668**	164.298**	171.413***	3.920	29.734***	27.585**	32.519***
	(0.037)	(0.042)	(0.041)	(0.038)	(45.739)	(58.852)	(64.000)	(63.476)	(7.817)	(9.424)	(10.750)	(11.379)
	0.157	0.001	0.010	0.001	0.208	0.020	0.010	0.007	0.616	0.002	0.010	0.004
	0.736	*0.016*	*0.044*	*0.016*	*1.000*	*0.068*	*0.044*	*0.044*	*1.000*	*0.019*	*0.044*	*0.037*
Control group mean	0.000	0.000	0.000	0.000	575.769	642.091	724.604	736.968	142.526	134.811	160.297	173.428
Sample size	2830	2720	2664	2686	2830	2720	2664	2686	2830	2720	2664	2686
p-value: Treat1 = Treat 2	0.646	0.374	0.945	0.769	0.685	0.494	0.633	0.689	0.793	0.882	0.954	0.613
p-val: Treat 1 = Treat 3	0.063	0.001	0.039	0.009	0.120	0.027	0.099	0.025	0.127	0.003	0.055	0.035
p-val: Treat 2 = Treat 3	0.423	0.179	0.099	0.092	0.486	0.451	0.480	0.030	0.438	0.014	0.159	0.299
p-value test of equality	0.271	0.001	0.042	0.005	0.415	0.062	0.074	0.019	0.477	0.003	0.059	0.027

Notes: Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. The Z score index is constructed following Kling et al. (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Standard errors in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.
a Z-score includes five different measures of sales and profits including unwinsorized and winsorized weekly and monthly outcomes, and inverse hyperbolic sine of monthly outcome.

Appendix Table 5: Round by Round Impacts on Employment

	Total employment excluding owners				Average of worker daily wage (US$) winsorized				Wage bill (US$)			
	F1	F2	F3	F4	F1	F2	F3	F4	F1	F2	F3	F4
Treatment 1: BRC	0.065	-0.063	-0.041	-0.076	n.a.	-0.060	-0.023	0.019	5.061*	-1.689	-1.415	6.786
	(0.065)	(0.066)	(0.063)	(0.062)		(0.059)	(0.048)	(0.026)	(2.973)	(1.988)	(1.857)	(5.164)
	0.317	0.341	0.517	0.218		0.304	0.630	0.465	0.089	0.396	0.446	0.189
	1.000	1.000	1.000	1.000		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Treatment 2: BRC + TPIN	-0.038	-0.125	-0.032	-0.079	n.a.	-0.080	0.096	-0.008	-0.492	0.206	2.138	0.903
	(0.074)	(0.078)	(0.079)	(0.080)		(0.070)	(0.075)	(0.031)	(2.512)	(2.560)	(2.688)	(2.972)
	0.606	0.109	0.687	0.318		0.256	0.203	0.798	0.845	0.936	0.426	0.761
	1.000	1.000	1.000	1.000		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Treatment 3: BRCE + IS + BBA	0.009	0.040	0.022	0.049	n.a.	-0.009	0.048	0.047**	3.407*	0.968	2.800	3.172
	(0.056)	(0.061)	(0.060)	(0.060)		(0.054)	(0.046)	(0.023)	(1.929)	(2.573)	(1.762)	(2.162)
	0.871	0.512	0.712	0.417		0.873	0.297	0.042	0.078	0.707	0.112	0.142
	1.000	1.000	1.000	1.000		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Control group mean	0.969	0.933	0.944	0.984	n.a.	0.380	0.318	0.227	17.261	19.180	16.151	17.417
Sample size	2830	2720	2664	2686	n.a.	2720	2664	2686	2830	2720	2664	2686
p-value: Treatment 1 = Treatment 2	0.162	0.386	0.907	0.968	n.a.	0.771	0.106	0.403	0.098	0.440	0.193	0.276
p-value: Treatment 1 = Treatment 3	0.315	0.056	0.264	0.024	n.a.	0.305	0.096	0.236	0.578	0.282	0.021	0.487
p-value: Treatment 2 = Treatment 3	0.470	0.013	0.469	0.086	n.a.	0.258	0.505	0.067	0.117	0.798	0.804	0.421
p-value test of equality	0.540	0.049	0.701	0.097	n.a.	0.509	0.220	0.128	0.116	0.670	0.107	0.317

Notes: Specifications include strata dummies, a variable representing the initial outcome at baseline, and a variable indicating missing data at baseline. Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (*q-values* in italics). Standard errors in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.

Appendix Table 6: Impacts on Business Performance and Employment Conditional on Survival.

	Z score[a]	Sales (U$S) winzorized	Profits (U$S) winzorized	Total employees excluding owners	Average worker daily wage (US$)	Wage bill (US$)
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment 1: BRC	0.024	37.167	5.781	-0.024	0.002	2.741
	(0.030)	(48.425)	(7.833)	(0.050)	(0.067)	(2.165)
	0.429	0.443	0.461	0.633	0.970	0.206
	0.485	*0.485*	*0.485*	1.000	*1.000*	*1.000*
Treatment 2: BRC + TPIN	0.048	57.580	7.259	-0.080	-0.057	0.725
	(0.042)	(64.382)	(10.507)	(0.061)	(0.074)	(2.101)
	0.251	0.371	0.490	0.187	0.440	0.730
	0.485	*0.485*	*0.485*	1.000	*1.000*	*1.000*
Treatment 3: BRCE + IS + BBA	0.109***	140.200***	24.105***	0.017	0.088	2.754*
	(0.030)	(44.926)	(7.552)	(0.046)	(0.089)	(1.583)
	0.000	0.002	0.001	0.708	0.325	0.082
	0.003	*0.005*	*0.005*	1.000	*1.000*	*1.000*
Control group mean	0.000	775.725	177.029	1.111	0.454	20.334
Sample size	9438	9438	9438	9,438	6,864	9,438
p-value: Treat1 = Treat 2	0.564	0.752	0.887	0.328	0.419	0.436
p-val: Treat 1 = Treat 3	0.004	0.025	0.014	0.331	0.316	0.995
p-val: Treat 2 = Treat 3	0.144	0.185	0.099	0.071	0.139	0.341
p-value test of equality	0.002	0.013	0.009	0.316	0.533	0.288
p-value test of equality of treatment effects over time						
Treatment 1	0.424	0.616	0.326	0.092	0.513	0.076
Treatment 2	0.544	0.612	0.371	0.508	0.072	0.718
Treatment 3	0.167	0.229	0.014	0.988	0.482	0.852

Notes: Data pooled for all four follow-up surveys. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. The Z score index is constructed following Kling et al. (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.
a Z-score includes five different measures of sales and profits including unwinsorized and winsorized weekly and monthly outcomes, and inverse hyperbolic sine of monthly outcome.

Appendix Table 7: Components of Impact on Access to Financial services

	Z score on Financial Services[a]	Has a bank account	Has a business bank account	Used an account just for business purposes	Does not save at home	Does not save in ROSCA or SACCO	Saves at bank
Treatment 1: BRC	0.026	0.012	0.017**	-0.004	-0.004	0.007	0.009
	(0.022)	(0.018)	(0.008)	(0.010)	(0.017)	(0.015)	(0.018)
	0.240	0.505	0.031	0.715	0.792	0.656	0.603
	0.405	*0.601*	*0.059*	*0.751*	*0.828*	*0.707*	*0.673*
Treatment 2: BRC + TPIN	0.018	0.018	0.010	-0.022*	-0.014	0.020	0.017
	(0.028)	(0.023)	(0.011)	(0.013)	(0.022)	(0.019)	(0.023)
	0.528	0.425	0.338	0.084	0.531	0.289	0.467
	0.601	*0.601*	*0.511*	*0.140*	*0.601*	*0.460*	*0.601*
Treatment 3: BRCE + IS + BBA	0.621***	0.181***	0.390***	0.152***	0.071***	0.033**	0.186***
	(0.023)	(0.015)	(0.012)	(0.011)	(0.015)	(0.013)	(0.015)
	0.000	0.000	0.000	0.000	0.000	0.012	0.000
	0.001	*0.001*	*0.001*	*0.001*	*0.001*	*0.026*	*0.001*
Control group mean	0.000	0.654	0.041	0.130	0.440	0.731	0.631
Sample size[b]	9438	9,438	10,900	10,900	9,438	9,438	9,438
p-value: Treat 1 = Treat 2	0.769	0.779	0.520	0.154	0.671	0.489	0.746
p-value: Treat 1 = Treatment 3	0.000	0.000	0.000	0.000	0.000	0.051	0.000
p-value: Treatment 2 = Treatment 3	0.000	0.000	0.000	0.000	0.000	0.456	0.000
p-value test of equality	0.000	0.000	0.000	0.000	0.000	0.053	0.000
p-value test of equality of treatment effects over time							
Treatment 1	0.144	0.672	0.037	0.182	0.216	0.486	0.610
Treatment 2	0.444	0.692	0.634	0.941	0.187	0.359	0.828
Treatment 3	0.000	0.003	0.000	0.000	0.006	0.043	0.004

Notes: Data pooled for all follow-up surveys, unless otherwise noted. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. Z score index constructed following Kling, Liebman, and Katz (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.
a Z-score on access to financial services includes the six variables. Those are owner has a bank account, has a business bank account, owner use an account for business purposes, owner does not save at hombre or ROSCA or SACCO, owner saves at bank.
b Sample size on access to financial services is 9,438 due to businesses that have closed. For several savings outcomes for which it is possible that individuals are saving even without operating a business, we use the sample of firms still in business since we lack data on these outcomes for those whose businesses have closed. We code as 0 outcomes that are business-only for firms that have closed (business bank account and used an account just for business purposes, we imputed with 0 for those business which have closed).

Appendix Table 8: Impacts on Business Performance Remain After Controlling for Financial Record-keeping.

	Z score[a]	Z score[a]	Sales (U$S) winzorized	Sales (U$S) winzorized	Profits (U$S) winzorized	Profits (U$S) winzorized
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment 1: BRC	0.008	-0.005	19.685	7.456	1.863	-0.924
	(0.029)	(0.027)	(43.448)	(42.191)	(7.238)	(6.879)
	0.789	0.852	0.651	0.860	0.797	0.893
	1.000	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Treatment 2: BRC + TPIN	0.032	0.043	44.525	55.296	4.407	6.976
	(0.040)	(0.038)	(58.201)	(56.405)	(9.787)	(9.388)
	0.433	0.266	0.444	0.327	0.653	0.457
	1.000	*0.646*	*1.000*	*0.646*	*1.000*	*0.844*
Treatment 3: BRCE + IS + BBA	0.106***	0.072***	130.636***	98.274**	22.977***	15.763**
	(0.028)	(0.026)	(40.630)	(39.677)	(6.924)	(6.606)
	0.000	0.007	0.001	0.013	0.001	0.017
	0.002	*0.055*	*0.004*	*0.055*	*0.004*	*0.055*
Business keeps financial records at FU		0.413***		401.440***		89.732***
		(0.018)		(26.383)		(4.418)
		0.000		0.000		0.000
		0.000		*0.000*		*0.000*
Control group mean	0.000	0.000	668	668	152	152
Sample size	10,900	10,900	10,900	10,900	10,900	10,900
p-value: Treat1 = Treat 2	0.558	0.217	0.672	0.402	0.795	0.402
p-val: Treat 1 = Treat 3	0.001	0.004	0.008	0.026	0.002	0.012
p-val: Treat 2 = Treat 3	0.063	0.441	0.130	0.439	0.053	0.343
p-value test of equality	0.000	0.012	0.007	0.051	0.003	0.041
p-value test of equality of treatment effects over time						
Treatment 1	0.817	0.929	0.857	0.956	0.598	0.811
Treatment 2	0.833	0.577	0.759	0.651	0.621	0.598
Treatment 3	0.200	0.095	0.346	0.215	0.028	0.009

Notes: Data pooled for all four follow-up surveys. Specifications include strata dummies, a variable representing the initial outcome at baseline, a variable indicating missing data at baseline, and dummies for survey round. The Z score index is constructed following Kling, Liebman, and Katz (2007). Adjustments to control false discovery rate (FDR) computed following Benjamini, Krieger, and Yekutieli (2006). p-values and q-values are reported below standard errors (q-values in italics). Clustered standard errors by firms in parentheses. *, ** and *** denote significant at the 10%, 5%, and 1% levels, respectively.
Odd numbered columns repeat specifications in Table 6, even numbers condition on keeping financial records.
a Z-score includes five different measures of sales and profits including unwinsorized and winsorized weekly and monthly outcomes, and inverse hyperbolic sine of monthly outcome.