Francisco Campos
Markus Goldstein
David McKenzie

Impacts of formal business registration in Malawi

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The impacts of formal registration of businesses in Malawi

Francisco Campos
World Bank

Markus Goldstein
World Bank

David McKenzie
World Bank

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Summary

The informal sector accounts for 30–40% of total economic activity in the poorest countries. A much higher share of informal employment is pervasive in poor African countries such as Malawi, where 93 per cent of firms have not registered with the government. These firms are largely small and unproductive, and their informal status is often associated with a number of costs, including lack of access to external finance.

Governments around the world have attempted to reduce informality by making it easier to formally register a business, with the World Bank's Doing Business project finding that 368 reforms took place in 149 economies between 2003 and 2012. The main reasons governments around the world attempt to bring firms on board to a formal status are to expand the tax base; expand the rule of law through establishing formality as the norm; facilitate firms' access to formal markets; and obtain information about the private sector to develop better policies and targeting of programmes.

This study estimates the impact of making it easier for firms to formalise in Malawi. The study randomly allocated firms into a control group and three treatment groups: (1) a group offered assistance for costless business registration; (2) a group offered assistance with costless business registration as well as (separate) tax registration; and (3) a group offered assistance with costless business registration, along with information sessions at a bank that ended with an offer of opening a business bank account.

The interventions took place in 2012. Since then, four follow-up surveys have been conducted, the last one having finished in 2015. We use data from the baseline and four follow-up surveys to analyse the full impact of the intervention. The study finds that all three treatments had extremely large impacts on business formalisation – with 75 per cent of those offered assistance receiving business registration certificates – but limited effects on increasing the tax base or improving trust in state institutions.

Business registration alone had no impact on expanding access to formal markets and business performance. However, combining the formalisation assistance with a targeted bank information session had impacts on firms' sales (20%) and profits (15%). The mechanism for the large effects of this targeted intervention was increased access to formal financial services through business bank accounts, better financial practices, savings, credit and business insurance.

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Abbreviations and acronyms

BBA	Business bank account
BRC	Business registration certificate
DRG	Department of the Registrar General
HH	Household
IS	Information session
MCCCI	Malawi Confederation of Chambers of Commerce and Industry
ROSCA	Rotating savings and credit association
SACCO	Savings and credit co-operative
TPIN	Taxpayer identification number

1. Introduction

The informal sector accounts for 30–40% 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 poor African countries such as Malawi, where 93 per cent of firms have not registered with the government.[1]

Governments around the world have four main reasons for attempting to bring firms on board to a formal status: (1) to expand the tax base and potentially collect more tax revenue; (2) to expand the rule of law through establishing formality as the norm; (3) to facilitate firms' access to formal markets (e.g. bank credit), which could lead to business investment; and (4) to obtain information about the private sector (getting to know the population of firms) to develop better policies and targeting of programmes.[2]

The World Bank's Doing Business project identified 558 'starting a business' reforms in 171 economies between 2006 and 2016 (World Bank 2017). This is the area in the *Doing Business Report* with the greatest number of reforms across the world. However, and in spite of efforts to make it easier for firms to formalise, a review of the effects of these reforms by Bruhn and McKenzie (2014) finds that they have had limited effects on formalisation, with the majority of existing informal firms not formalising after it became easier to do so.

This is seen in the results of five randomised experiments to encourage formalisation. In Sri Lanka, De Mel and colleagues (2013) find that information and free registration have no impact on registration with the tax authority, although they do find a significant number of firms are willing to register when offered money to register. In Brazil, Andrade and colleagues (2016) find no impact of either information or free registration on registration under a one-stop shop for municipal, state and federal taxes, although they do find that increased municipal enforcement results in more municipal registration. In Bangladesh, de Giorgi and Rahman (2013) find no impact of an information campaign on business registration (separate from tax registration). In Lima, Peru, Alcázar and colleagues (2010) and Jaramillo (2009) find that information and reimbursement of direct costs lead about one quarter of those treated to register at municipal level. In Benin, Benhassine and colleagues (2016) find limited effects on national tax registration of providing 'hand-holding' formalisation assistance to firms.

Despite the lack of success, the same four reasons are often used to justify reforms to ease formalisation. In this study, we test their importance in justifying government intervention to bring firms on board to a formal status. We measure their relevance in driving social benefits, including increasing the tax base and revenues, as well as firm-level development. We conclude that only through the last reason are there positive benefits three years after the interventions, and those arise in terms of firm-level growth.

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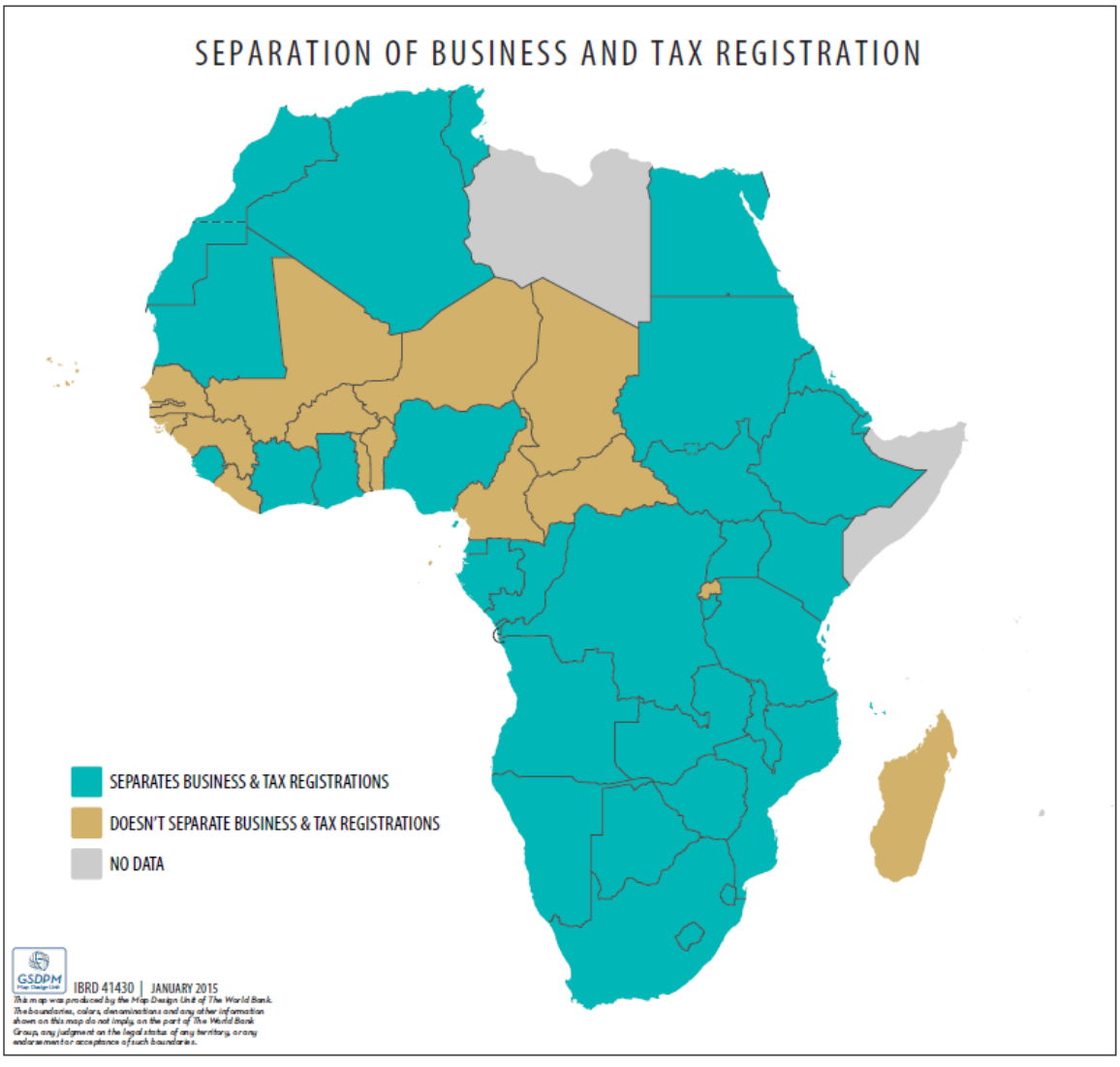
[1] Source: 2004-05 Integrated Household Survey.

[2] The difference between the third and fourth reasons is that in the third, the relationship between formalisation and formal markets is seen as causal, whereas in the fourth, formalisation is a mechanism for being able to offer other services.

We conducted a randomised controlled trial in Malawi to learn about each argument for formalisation. The most popular approach in many countries has been to introduce one-stop shops, which make it easier to fully formalise. However, this removes, in part, the option for 'partial formality', in which firms provide information to the government and receive some benefits, but do not enter the formal tax system.

Although many countries have moved towards simultaneously registering businesses in a national registry, obtaining a tax registration and registering them at the municipal level, Malawi – like many countries in Africa (Figure 1) – separates the process of business registration from tax registration. Business registration provides the government with information about the existence of a firm and provides the firm with a business registration certificate (BRC). In Malawi, the BRC is the main form of identification needed to open a business bank account, register land and apply to government assistance programmes. Tax registration allows the firm to provide tax invoices to customers and access government procurement systems, but also requires them to pay national taxes.

Figure 1: Separation of business registration from tax registration, by country



Note: Adapted by the authors from doingbusiness.org.

This separation of business and tax registrations allows us to test the different reasons to bring firms on board to a formal status. We assign firms to four groups: (1) a control group; (2) a treatment group assigned to receive assistance in obtaining the BRC; (3) a treatment group assigned to receive assistance in obtaining the BRC and a taxpayer identification number (TPIN); and (4) a treatment group assigned to receive assistance in obtaining the BRC, along with a targeted programme involving information sessions from a bank where business bank accounts are offered.

The remainder of the paper is structured as follows. Section 2 describes the study's objectives and theory of change. Section 3 reviews the business registration process in Malawi, contextualised in terms of the procedures in other countries. Section 4 presents the timeline. Section 5 explains the impact evaluation and data collection methodology and discusses baseline characteristics of our sample. Section 6 reviews the intervention procedure in detail. Section 7 provides an impact analysis and results of key questions. Section 8 discusses implementation challenges. Section 9 revisits the main policy objectives for business formalisation.

2. Business registration impact evaluation

2.1 Objective and intervention

The objective of the business registration impact evaluation programme is to encourage firms to formalise and obtain their registration, offering support with the steps of formalisation. An additional objective is to assist firms in opening business bank accounts, bringing them closer to achieving important aspects of their financial development.

Although many countries have moved towards registering businesses in national registries, obtaining both tax registration and business registration at the municipal level, many countries in Africa, including Malawi, separate these two registration processes. Malawi requires three steps for small firms to achieve formal registration: (1) register the business at the Department of the Registrar General (DRG) to obtain a BRC; (2) register the business at the Malawi Revenue Authority to obtain a TPIN; and (3) register at the local City Council to obtain a business licence. The three institutions that provide these documents operate independently and having a BRC is a prerequisite for obtaining a TPIN.

Most of the benefits of becoming formal can be achieved just with the BRC, which is required and sufficient for firms wishing to open a business bank account or take out a business loan from a formal bank. The BRC is also required to register with the Malawi Confederation of Chambers of Commerce and Industry (MCCCI) to register land and to access business development services provided by the government.

The intervention consisted of making business registration costless. We visited business owners in the treatment groups and offered assistance in registering their businesses, also giving them a one-page flyer with information on the potential benefits of registration. For those that were interested, we assisted them in filling out the Business Registration Form, took the required photo and delivered their application to the DRG, paying the business registration fee on their behalf. Once the BRC was ready – on

average, within about two weeks – we delivered it to the firms. The only cost to the firm was the time it took to fill out the registration form (with assistance from our team).

From the group of firms that were offered business registration assistance, we then offered a random subgroup of firms the additional option of assistance in registering for a TPIN. Finally, for another subgroup of firms receiving business registration assistance, we also invited them to information sessions held by a private bank, NBS Bank, on the benefits of separating business funds from household money. Bank accounts in the name of the business were offered at the conclusion of the information sessions.

See Section 6 for further intervention details.

2.2 Theory of change

The underlying theory of change is that the programme would lead to an increase in formalisation of firms in Malawi. The main assumption behind the intervention is that lack of information about the process and the potential benefits of business registration is restricting firms from accessing a formal status.

The theory of change being tested is whether informality is one of the barriers to growth for enterprises, acting as a constraint on a firm's ability to access services and sources of finance, thereby affecting its performance and, consequently, levels of employment and income in developing countries. Under this scenario, the programme improves firms' likelihood of accessing finance and their performance by increasing firms' sales and profits. Similarly, since the programme provides access to the formal sector, we may see impacts on major policy arguments, including an increased tax base; a culture of formalisation, with reduced harassment and increasing trust in institutions; and access to formal markets and specialised programmes.

The following are the main assumptions informing the causal logic we wanted to test, which in turn defined the core hypotheses, evaluation questions and expected impact:

- Reducing constraints to business registration will increase the rate of formalisation, with several policy implications:
    - Business registration is complementary to tax registration and will result in an expanded tax base;
    - With a more formal status, firms will experience less harassment by authorities, reduce their risk of closing and improve trust in government institutions;
    - Firms with a BRC will increase access to new markets and networks, including opening business bank accounts, obtaining bank loans, registering land in the name of the business, obtaining export licences, applying to private tenders, using government programmes or being members of the MCCCI;
    - Firms with a BRC will increase access to targeted interventions – in this case, business bank accounts. Offering these directly will test the need for the additional intervention;
    - Firms with separate business bank accounts – and, when applicable, training on separating household and business money – will reduce the risk of lack of

self-control in the use of money and will protect enterprise funds from appropriation by other household members or friends;
    - With increased access to financial services and business opportunities, enterprises will invest further in the business, in reaching out to new clients (including advertising) and in managing their resources better. For this, they will use their BRCs to increase access to formal credit markets; and
    - These changes in behaviour, due to increased opportunities, will lead to better outcomes, including increased turnover and profits.

The results chain is as follows:

- Inputs – financial and human resources;
- Activities (treatment group) – business registration, registration for taxes, training and opening of business bank accounts;
- Outputs – registration of firms at the DRG, registration of firms at the Malawi Revenue Authority and opening of business bank accounts; and
- Outcomes – increased tax base; increased formality, permits and licences and lower harassment levels; improved access to finance, markets and networks; improved financial performance due to targeted interventions, investment in the business, survival rate and employment; and better standard of living of beneficiaries and their dependents.

2.3 Research hypothesis

The theory of change focuses on hypotheses about how firms respond to their formalisation status. Our key hypothesis is that the programme increases the likelihood of having a BRC, TPIN or any City Council licence.

We explore mechanisms of change, such as firms' access to finance. The hypotheses we test are whether firm formalisation increases the likelihood of treated firms' getting a business loan with a formal bank; the amount businesses can borrow in two weeks; the actual amount borrowed; the likelihood of treated firms' opening a bank account or a business bank account used solely for business purposes; the likelihood of treated firms' being contacted by the bank; the likelihood of treated firms' having insurance in the name of the business; and the likelihood of treated firms' saving money at the bank.

We also test whether formalisation reduces the likelihood of treated firms' saving money at home and/or with informal organisations – e.g. rotating savings and credit associations (ROSCAs) and savings and credit co-operatives (SACCOs) – and whether saving decreases the likelihood of treated firms' taking business money whenever needed for the household. Finally, we also test whether the programme increases the financial literacy of the business owner.

3. Business registration in Malawi

3.1 Context

This evaluation takes place in the context of a broader effort by the government of Malawi to reduce informality, improve the business environment and streamline the process of business registration, given the country's large proportion of unregistered businesses.[3] As part of the Business Environment Strengthening Technical Assistance Project,[4] supported by the World Bank, the government sought to increase registration of informal enterprises, shift to an online system of business registration and reduce the time required to register firms.

The government is also considering combining these reforms with outreach campaigns promoting the potential benefits of business registration. It is committed to experimentally assessing the value of micro, small and medium enterprises becoming formal. Ultimately, the government aims to provide more information to firms about registration (if the impacts of registration are positive) or to identify other bottlenecks that constrain enterprise performance (if the results are negative or zero).

The *2016 World Bank Doing Business Report* shows that Malawi has somewhat improved the way of doing business, although strong limitations persist. Between 2015 and 2016, Malawi's Doing Business ranking moved from the 144th to 141st position out of 189 countries. Obtaining a BRC takes 5 days, on average, if the application is hand delivered, and 14 days by mail. It takes only one day to register for a TPIN at the Malawi Revenue Authority if the application is hand delivered. Despite these improvements, starting a business in 2016 took 38 days, almost the same as in 2007. In addition, the number of hours needed to fulfil tax requirements is around 175 hours per year, or 21 full working days (World Bank 2016).

3.2 Formalisation process

As in much of the rest of Africa, businesses in Malawi can choose which aspects of formality, if any, to obtain (Table 1). In this section, we discuss the steps, costs and benefits to the firm of each of these options.

[3] Source: 2004-05 Integrated Household Survey.

[4] This US$18.7 million project was approved in 2007 and ended in 2012.

Table 1: Benefits of becoming formal in Malawi

Benefits	Business registration certificate (BRC)	Taxpayer identification number (TPIN)	City Council licences
Open business bank account	Yes		
Apply for bank loan	Yes		
Register land in the name of the business	Yes	Needed if seller of land (to show tax clearance for capital gains)	
Export licence	Yes		
Apply to private tenders	Not necessary in most cases; helpful in specific cases for large firms		
Apply for government's matching grants and business development services	Yes		
Access to ODPP (government procurement system)	Yes, but also need TPIN and, in some cases, tax clearance	Yes, with BRC	
Reduce harassment by police/government officials	Yes for MoIT, but not common at all	Yes for taxes, but not common for those without a TPIN	Yes: harassment is common as the municipality needs the money; includes locking the premises if firm does not pay
Apply for MCCCI membership	Yes		
Provide tax invoices to customers		Yes	

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

3.2.1 Obtaining the BRC

The business registration process involves completing the Application for Registration of Business Name and submitting it with a passport photo or copy of the national identification card to the Registrar General's office in Blantyre. At baseline, the cost of registering as a sole trader or partnership was MWK 200 (US$1.30). This cost increased during the study period (in mid-2012) to MWK 2,000 (US$8 in 2012, when the intervention took place, but US$4 in 2013).

In addition to the cost of registration costs, those not living in Blantyre incur transportation costs. For firms in the capital city, Lilongwe, the round-trip cost of travelling by bus to Blantyre – once to apply and again to collect the certificate – is around US$32 (US$8 for each 5- to 6-hour bus ride). The official time for processing an application is 14 days. However, this appears to vary considerably in practice;

conversations with lawyers and business owners suggested it takes some people just 1 day to register, while others are told it takes 2 months (and they are often offered help from an intermediary for 5–10 times the actual price).

Enforcement of the BRC is very limited, with no general inspection process at present to check whether firms have this document. The BRC itself does not impose any further obligations on the firm to pay annual fees or taxes.

In common with evidence from other countries (e.g. de Mel et al. 2013; Andrade et al. 2014), baseline knowledge of the registration process and cost was limited. Eighty-three per cent of respondents said they did not know the minimum cost of obtaining a BRC, while for the remaining 17 per cent, the median response was 10 times higher than the actual cost at the time. This difference could be partly associated with incorporating the costs of travelling, as the median estimated cost amongst respondents in Lilongwe was 15 times higher than the actual cost. In Blantyre, the median response was 5 times more expensive (16% of those in Lilongwe and 18% of those in Blantyre were able to provide a response). The responses also could have been influenced by the use of intermediaries to submit the application.

3.2.2 Obtaining the TPIN

Registration for taxes (TPIN) is free, although businesses must submit an application, with the BRC attached, to the Malawi Revenue Authority, which has branches throughout the country. Once a business has a TPIN – which can be obtained the same day if the application is hand delivered – it is required to report its turnover to the Malawi Revenue Authority and pay the corresponding tax every month. Firms with less than MWK 6 million in annual turnover are required to pay 2% of their sales in taxes; according to baseline data, this threshold applies for about 95% of the firms in this study. 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.

3.2.3 City Council licence

All firms are also supposed to obtain licences at the local City Council (e.g. Lilongwe, Blantyre) in order to operate. Firms operating in a trading market are the exception to this requirement, since they have to pay a fee at the market, typically MWK 50 (US$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 licences directly at the City Council, the exact licences required depend on the type of business. If the enterprise has its own premises, it must obtain an annual general business licence, as well as specific licences for the sector in which it operates. For the general licence, a hairdresser in Blantyre pays US$135 annually, while a retail company in a better location pays US$133. For a food licence, a grocery shop pays US$27 to operate in a township, but US$67 to operate in the city centre. These licences must be renewed every year. Entrepreneurs who operate from a visible place, such as a main street, are often subject to inspections by the City Council. The municipality is highly dependent on these revenues for its budget, and hence has a large incentive to find non-payers, which the council can close down if they fail to comply.

3.2.4 The potential benefits of different types of formalisation

Table 1 summarises the main benefits to the business of the three types of formalisation. Most of the benefits of becoming formal can be achieved just with the BRC. A BRC is required, and sufficient, for firms wishing to open a business bank account or take out a business loan from a formal bank. It is also required for registration at the MCCCI, to register land, and to access business development services provided by the government.

A BRC is required to obtain a TPIN, which offers three main benefits on top of the BRC: (1) firms cannot be paid for a successful government tender without a taxpayer ID; (2) firms avoid fines or harassment for failing to pay taxes (although enforcement is infrequent); and (3) firms may be able to use their history of paying taxes to document their financial history when applying for loans from financial institutions.

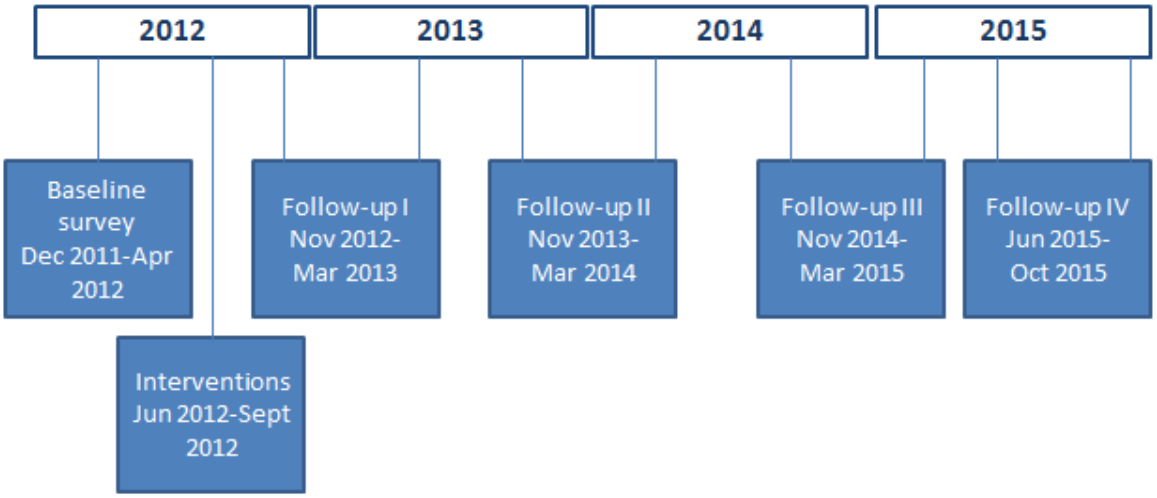
The main benefit of holding the business licence issued by the City Council is to avoid the risk of being shut down or harassed by municipal inspectors.

4. Timeline

The interventions took place between June and September 2012. The baseline survey, conducted between December 2011 and April 2012, provides detailed pre-intervention information for the sample of informal firms.

Four rounds of follow-up surveys were conducted after the intervention (Figure 2). The first took place between November 2012 and March 2013, on average four months after the interventions. The second took place between November 2013 and March 2014, on average 16 months after the interventions. The third took place between November 2014 and March 2015, on average 28 months after the interventions. The most recent follow-up survey took place between June and October 2015, on average 35 months after the interventions.

Figure 2: Project timeline



5. Evaluation of the business registration programme

5.1 Data and impact evaluation design

This study is a randomised controlled trial that aims to measure the impact of business registration for micro- and small enterprises in Malawi. In this section, we first discuss the process of obtaining a sample of informal firms, and then provide details on the randomisation process and interventions. The project underwent ethical review by the Institutional Review Board and Innovations for Poverty Action and was granted a waiver of review from the National Commission for Research in Social Sciences and Humanities in Malawi.

5.1.1 Obtaining a sample of informal firms

In this study, we targeted informal micro- and small enterprises that were likely to be able to benefit the most from business registration, and that the government had said would be its first group of interest for a future 'road show' on business registration. We targeted firms in urban Lilongwe and Blantyre, the country's major commercial cities.

At the end of 2011, we listed more than 100 business centres – concentrations of firms, including industrial parks, markets, streets with shops and set of workshops – and randomly sampled 46 of the centres (23 in each city) to list all businesses operating in these areas. Through this process, we listed 7,603 enterprises, 85 per cent of which were not registered at the DRG. We excluded household-based enterprises from the sample. Surveys in Africa have shown that household-based enterprises tend to be smaller, on average, than those operating in business centres (e.g. Bossuroy et al. 2013). Similar proportions of unregistered firms were identified in Blantyre and Lilongwe, despite the DRG's location in Blantyre. Only one quarter of the firms listed were female owned.

We held a workshop with government officials, as well as consultations with stakeholders, including in the private sector, to share the criteria for targeting firms in the informal sector for this study. There was consensus on targeting larger firms (measured in revenues) as a proof of concept. In addition to revenues, other selection criteria identified by stakeholders included the number of workers and whether the firm operated from a fixed location. The firms to be identified would be those more likely to be targeted or incentivised for formalisation by the government and more likely to realise the potential benefits of business registration. At the same time, we aimed at equalising sample sizes by gender and city location (50% by gender and by city) in order to increase statistical power in the analysis of heterogeneous effects.

We identified 3,600 firms from the listing data, with the objective of visiting them again and completing a baseline survey with a minimum of 3,000 enterprises. We started with 3,600 firms, aiming to increase the likelihood that we would find 3,000 informal businesses to interview at baseline. The risks in the absence of this strategy were: not finding the business owner again, since the listing exercise did not allow for collecting detailed contact information; and having firms in the impact evaluation sample that had indicated informal status in the listing but were actually registered. The latter risk would materialise if there were significant measurement problems during the listing.

By location and gender of the business owner, we identified the initial 3,600 firms by selecting firms with larger revenues that complied with one of the following criteria:

- Had at least one worker contracted outside of family members and business owners;
- Was operating in a fixed location with more than one person working in the business; or
- Was at the 25th percentile of revenues or greater.

Through this two-step process, we completed a detailed baseline survey of 3,002 informal firms, of which 1,195 were female owned and 1,494 were from Lilongwe. Given that only about one quarter of the informal firms captured in the listing were female owned, our final sample of female entrepreneurs was lower than the initial aim of 50 per cent.

The baseline survey (December 2011–April 2012) collected information on the characteristics of the firms and their owners, including their use of financial services, their financial literacy and knowledge about business registration processes, and the financial performance of their business.

5.1.2 Summary characteristics of sample by gender

Table 2 compares the baseline characteristics of our sample by gender. Forty per cent of the sample is made up of female entrepreneurs. Half the sample is in Lilongwe, with the other half in Blantyre. More than 70 per cent of firms in our sample were in the retail sector, including grocers (21% of total), sellers of agricultural produce (10%), sellers of animal produce (10%) and hardware shops (8%). The focus on retail was particularly pronounced for men, while women were more prevalent in services (35% for women versus 14% for men).

Most firms in our sample were owned by a single individual and had an average of two people working in the business. The average business had been started by the owner and had been in operation for eight years. 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 sum, male-owned enterprises were larger and more ‘formal’.

Sales, profits and investments were also larger for male-owned enterprises. Average monthly profits were US$243 per month for male-owned firms versus US$169 per month for female-owned firms. In terms of harassment, although men were more likely to have been asked for a business-related bribe in the past 12 months (5.5% versus 3.4% for women), women were significantly more likely to have been sexually harassed while on the job (11% for women versus 3% for men).

Education levels were similar by gender: 92% of the sample were literate and 65% had completed primary school or higher, but only 29% had completed secondary school. Men had, on average, a higher score than women on an index of financial literacy questions. Male entrepreneurs were also more likely to be married or living with someone (86% versus 71% for females) and to have a more significant role in household decision-

making. Women's spouses were much more likely than men's to be in wage employment (30% versus 5%).

At baseline, more than 60 per cent of firms had saved money in some form of account, with 57 per cent using a bank account. This is considerably higher than average bank account usage (22%) in a national survey of micro-, small, and medium enterprise owners in Malawi (FinMark 2012). However, almost all of these bank accounts were personal accounts, as only about 2 per cent of the firms (self-reported) had access to a business bank account at baseline (consistent with the fact that business registration is almost always a precondition for opening an account in the name of the business).

In our sample, women were more likely to use savings mechanisms than men – not only bank accounts (60% for women versus 55% for men), but also informal mechanisms such as ROSCAs and SACCOs (12% versus 5%). Mixing of household and business finances was common, with 78.5 per cent saying they took business money whenever required for household needs.

Although use of a bank for (personal) savings was relatively common, the use of bank loans was rare, with only 7.3 per cent of entrepreneurs having had a bank loan used for business purposes in the past. 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 had obtained credit in the past, 42 per cent of the most recent loans did not require collateral. When collateral was needed, business owners primarily used cash deposits, followed by household assets and group-lending. These findings confirm that most loans were small.

The proportion of entrepreneurs having been denied credit was similar for men and women – 19 per cent of male entrepreneurs and 17 per cent of female entrepreneurs that had 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.

In terms of formality, the businesses were all screened to ensure they did not have a BRC at baseline. Nevertheless, 55 per cent had paid City Council or market fees, with 15 per cent reporting they had received an inspection from the municipality.

Table 2: Descriptive information at baseline

	Full sample	SD	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	62.9	13.7***
Services	22.3	42.0	14.0	34.8	–20.8***
Number of people working in business	2.0	1.3	2.1	2.0	0.0
Number of owners	1.1	0.4	1.1	1.1	–0.0
Age of firm	8.0	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	29.0	92.1	88.9	3.3***
Owns space where operates business	34.0	47.0	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	23.0	6.6	3.9	2.7***
Has written business plan	16.6	37.0	17.7	14.8	2.9**
Has written budget	2.4	15.0	2.4	2.3	0.1
Keeps financial records	55.3	50.0	55.4	55.1	0.3
Provides receipts	17.7	38.0	23.5	9.0	14.4***
Business with access to electricity	26.8	44.0	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	40.0	86.1	71.0	15.2***
HH decision-making index (0–100)	84.2	20.0	86.7	80.4	6.3***
Main provider of income to household	76.9	42.0	95.0	49.6	45.3***
Literate	91.5	28.0	92.9	89.3	3.6***
Primary school completed is max education	35.6	48.0	36.6	34.2	2.4
Secondary school completed is max education	24.3	43.0	23.9	25.0	–1.2
Higher education completed	5.3	22.0	4.5	6.5	–2.1**
High capture	36.2	48.0	35.8	37.0	–1.2
Financial literacy knowledge (0–1)	0.43	16.0	0.44	0.42	0.0***
Mother entrepreneur	21.5	41.0	17.9	27.0	–9.1***
Mother in wage employment	5.9	23.0	4.5	8.0	–3.5***
Father entrepreneur	21.1	41.0	22.0	19.8	2.2
Father in wage employment	27.1	44.0	23.1	33.2	–10.1***
Spouse entrepreneur	28.6	45.0	30.4	25.9	4.6***
Spouse in wage employment	15.0	36.0	4.9	30.1	–25.2***

	Full sample	SD	Male	Female	Diff
N	*3,002*		*1,807*	*1,195*	
Firm characteristics					
Financials (US$)					
Revenue past month	1,003.8	2,543.7	1,203.9	701.2	502.7***
Profit past month	213.6	277.2	242.9	169.2	73.7***
Business assets	1,911.4	4,646.7	2,174.0	1,514.3	659.6***
Fixed assets	969.6	3,358.6	1,093.1	782.8	310.3**
Financial services					
Any account (formal or informal)	62.4	48.0	58.4	68.5	–10.0***
Has bank account	56.8	50.0	54.6	60.2	–5.6***
Has bank account in name of business	2.0	14.0	2.1	1.9	0.2
Uses any account just for business purposes	4.2	20.0	3.7	4.9	–1.2
ROSCA_SACCO	7.9	27.0	4.9	12.4	–7.5***
Saves at home	28.5	45.0	31.9	23.4	8.6***
Borrowed in the past	37.0	48.0	35.2	39.8	–4.6***
Bank loan in the past	7.3	26.0	6.0	9.3	–3.3***
Debt outstanding (US$)	33.6	200.2	32.6	35.1	–2.5
Takes business money whenever for HH	78.5	41.0	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	50.0	57.2	53.2	4.0**
Identifies benefit(s) of business registration	71.7	45.0	74.1	68.2	5.9***
Was inspected by municipality before	15.3	36.0	16.1	14.1	1.9
Harassment					
Asked for bribe	4.7	21.0	5.5	3.4	2.1***
Sexual harassment in business	6.0	24.0	2.8	10.8	–8.0***

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

5.1.3 Random assignment to treatment and different treatments

We stratified firms interviewed at baseline on five measures: gender, location (Blantyre, Lilongwe), sector (commerce, services and manufacturing), business owner's ability to identify benefits of business registration (binary variable) and high capture. We then randomly assigned the sample within each stratum to one of the three treatment arms or to the pure control group, as follows (Figure 3):

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

Figure 3: Impact evaluation design

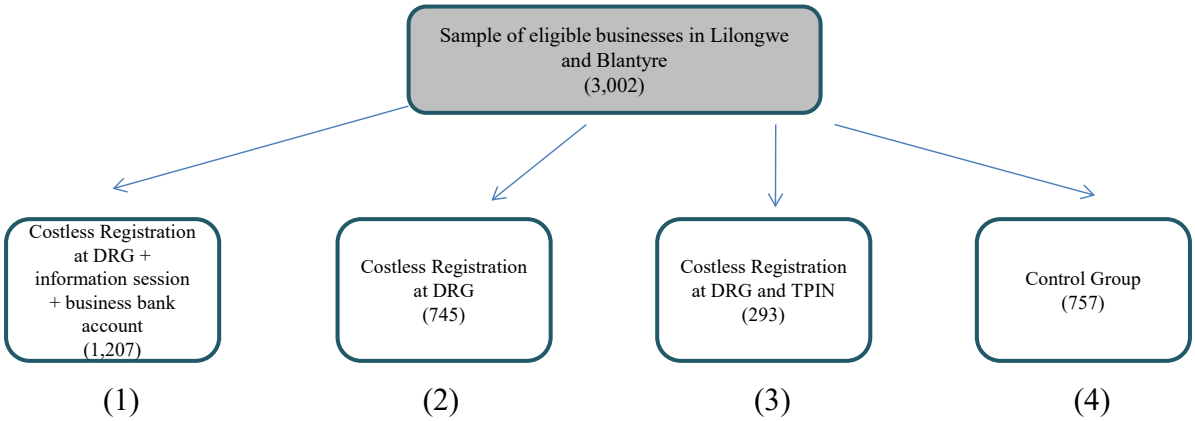


Table 3 presents summary statistics for all four groups, showing that the groups are balanced when compared with the pure control group. The groups are of different sizes for two reasons. First, since we did not expect high take-up of tax registration, based on previous studies, our aim was to test whether this result also applied in Malawi, without expecting to then have sufficient power to test the impact of tax registration on subsequent firm performance. In contrast, since the main benefits of formalisation appear, in theory, to occur through business registration, we wanted a sufficient sample to have power to measure the impacts of this type of formalisation on firm performance. Second, the partner bank requested a larger sample size, which is why the last treatment group is larger.

Table 3: Verification of randomisation

Balance at baseline across treatment status	**Treatment groups**			**Differences**	
	(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	0.1
Lilongwe	51.0	49.5	50.2	48.0	0.5
Large firm	50.7	56.3	48.6	53.1	2.5*
Age of firm	8.0	7.7	7.7	8.3	1.2
High capture	37.6	35.2	35.6	36.3	0.3
Manufacturing	6.3	6.8	6.3	7.3	0.3
Retail	71.1	72.0	71.3	70.4	0.1
Services	22.6	21.2	22.4	22.3	0.1
Firm characteristics					
Number of people working in business	2.0	2.0	2.1	2.0	0.2
Number of owners	1.1	1.1	1.1	1.1	1.9
Owner started business	89.7	88.7	91.9	91.2	1.4
Owns space where operates business	36.2	31.1	32.6	35.3	1.4

Balance at baseline across treatment status	Treatment groups			Differences	
	(1) BRC	(2) BRC + TPIN	(3) BRC + IS + BBA	Control	F test
# new products introduced past 12 months	0.6	0.8	0.7	0.5	1.4
Business with access to electricity	26.9	25.3	28.1	25.1	0.8
# of competitors	14.1	13.8	15.2	14.6	0.2
Time to nearest bank (minutes)	21.3	18.9	20.5	21.3	3.3**
Individual characteristics					
Owner age	33.6	32.8	33.3	34.0	1.8
Married/Living with someone	78.9	79.9	80.0	81.5	0.5
HH decision-making index (0–100)	83.5	83.7	84.3	84.9	0.6
Main provider of income to household	77.6	76.0	78.0	74.7	1.0
Literate	92.7	92.8	90.7	91.0	1.1
Primary school completed is max education	34.8	34.8	35.9	36.5	0.2
Secondary school completed is max education	23.9	26.3	24.3	24.0	0.2
Higher education completed	5.5	4.8	5.4	5.2	0.1
High capture	37.6	35.2	35.6	36.3	0.3
Financial literacy knowledge (0–1)	0.4	0.4	0.4	0.4	1.5
Mother entrepreneur	23.5	15.4	21.0	22.6	3.6**
Mother in wage employment	5.9	5.1	5.6	6.6	0.4
Father entrepreneur	20.3	16.7	20.6	24.3	2.9**
Father in wage employment	25.5	23.9	28.7	27.5	1.4
Spouse entrepreneur	28.9	28.3	27.1	30.9	1.1
Spouse in wage employment	14.9	11.6	16.1	14.5	1.5
Primary outcomes					
Has TPIN	5.4	5.5	4.8	5.4	0.2
Has City Council licence	56.8	58.0	54.0	56.0	0.8
Revenue last week winsorised (US$)	246.5	234.1	249.4	249.7	0.2
Revenue last month winsorised (US$)	872.6	841.9	902.1	911.9	0.3
Profit last week winsorised (US$)	58.0	59.1	57.4	58.4	0.1

Balance at baseline across treatment status	Treatment groups			Differences	
	(1) BRC	(2) BRC + TPIN	(3) BRC + IS + BBA	Control	F test
Profit last month winsorised (US$)	201.5	207.5	208.9	206.4	0.2
Secondary outcomes					
Total workers	2.0	2.0	2.1	2.0	0.2
Number of days in a work month	25.2	25.5	25.4	25.1	1.5
Capital (US$): fixed assets	829.2	744.6	1,049.5	1,067.6	2.0
Assets (US$): fixed assets + inventories + cash	1,683.6	1,554.7	2,124.7	1,936.5	2.8**
Proportion of male workers	60.0	60.8	60.4	58.6	0.3
Mechanisms of change: access to finance					
Borrowed in the past	36.2	38.2	35.7	39.4	1.0
Amount of a recent loan (US$)	6.7	28.2	5.6	6.6	0.4
Has bank account	58.8	57.0	56.2	55.8	0.6
Has bank account in name of business	2.0	2.1	1.8	2.4	0.2
Uses any account just for business purposes	5.0	4.4	3.7	4.2	0.7
Saves at home	28.7	27.0	28.2	29.5	0.3
ROSCA_SACCO	6.9	9.9	7.5	8.7	1.1
Saved amount (US$)	237.3	224.5	274.9	223.5	1.1
Saved amount at bank (US$)	217.2	196.3	244.9	202.4	1.0
Takes business money whenever for HH	77.5	80.2	78.2	79.3	0.4
Mechanism of change: other potential benefits of formalisation					
Identifies benefit(s) of business registration	69.9	73.4	71.8	72.7	0.6
Was inspected by municipality before	14.9	15.7	15.1	15.9	0.1
Asked for bribe	3.8	4.8	5.2	4.6	0.8
Threats to shutdown	99.6	99.0	99.5	99.3	0.4
Confiscation	5.2	5.1	4.9	5.2	0.0
Sexually harassed	5.5	4.8	6.5	6.1	0.6
Other harassment	9.7	4.4	10.8	9.5	6.3***
Provides receipts	15.3	17.1	18.5	19.2	1.6
Number of customers	37.4	36.9	35.0	37.8	0.6
Tender	4.4	4.8	4.9	4.9	0.1

Balance at baseline across treatment status	Treatment groups			Differences	
	(1) BRC	(2) BRC + TPIN	(3) BRC + IS + BBA	Control	F test
Has written budget	2.8	2.1	1.7	3.3	2.0
Keeps financial records	54.1	52.2	56.1	56.3	0.7
Advertises	5.8	3.4	6.1	5.3	1.5
Other business activity	14.1	13.3	13.3	14.4	0.2

Note: Variables 'without outliers' are winsorised 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.

6. Programme design

We conducted three interventions: (1) the business registration intervention, (2) the business and tax registration intervention and (3) the business registration intervention, along with a bank information session. In the first case, we only offered assistance for costless business registration. In the second case, we offered assistance with costless business registration and tax registration; and in the third case we offered assistance for costless business registration along with information sessions at a bank, which ended with the offer of business bank accounts.

We invited firms from the first treatment group from our sample of informal micro-, small and medium enterprises to register at the DRG through this costless process. Two competing aspects of our cost structure differ from the normal registration process for individual entrepreneurs. First, the non-governmental organisation working with us had to deploy enumerators to support firms with the registration process, which is costly. Second, the non-governmental organisation achieved cost savings by delivering a large set of applications to the DRG minimising the transport costs. The all-in cost of the business registration intervention was US$22 per registration offered and about US$27 per registration offer accepted.

Second, from the group that was offered business registration assistance, we offered a random subgroup of firms the additional option of assistance in registering for taxes and obtaining a TPIN. For the firms in this treatment group, we offered both interventions together, explaining that the process of formalisation included these two steps – first the business registration and then the TPIN. However, entrepreneurs were allowed to accept just the national business registration. As with the first treatment group, we assisted the firms in filling out the TPIN form and delivered their applications to the Malawi Revenue Authority. We pooled applications and delivered them in a batch, obtaining TPINs the same day. When hand-delivering the TPIN certificates to the business owners, we provided an example of the monthly form they needed to submit and explained the tax payment process they would need to follow.

Finally, we offered a subgroup of firms business registration assistance and invited them to an information session, held by a private bank, NBS Bank, on the benefits of separating business from household money. Bank accounts in the name of the business were offered at the conclusion of the information sessions. The objective of this additional intervention was to test the interaction between business registration and the

information sessions, not the effect of information sessions on their own or the importance of information sessions versus business bank accounts. The decision to evaluate the combined effects of these interventions was based on its relevance for potential policy, and because having a BRC is a precondition for opening a business bank account (and, through that process, liaising with the bank's small and medium enterprise department).

NBS Bank was not interested in providing information about the benefits of separating household and business money if the firms did not qualify for business bank accounts. Rather, the bank was interested in increasing its reach and saw this combined intervention as a potentially inexpensive mechanism for achieving that goal.

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 co-facilitated by NBS Bank representatives experienced in dealing with small business clients and a professional financial literacy trainer. The information sessions comprised 20 hours of activities (two 8-hour days and a 4-hour follow-up session one week later), with information on the following topics:

- Formal and informal financial institutions and the role of banks;
- The benefits of bank accounts;
- Identifying the specific problems businesses face, namely the intertwining of business and household responsibilities;
- The benefits of separate business and household responsibilities;
- How business bank accounts allow for the mental and physical separation of household and business funds; and
- 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 account was available to all firms in Malawi with a BRC.

7. Impact analysis and results of key questions

7.1 Sources of data for measuring impacts

We use two sources of data for measuring the impacts of these interventions. The first is data from our administrative records of programme take-up. This includes information on which firms we assisted to get BRCs and TPINs, 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 the sessions.

The second source of data is the baseline and four rounds of follow-up surveys. Details of the timeline of the surveys is discussed in section 4. Attrition was 5.7% in the first follow-up, 9.4% in the second follow-up, 10.9% in the third follow-up and 10.5% in the fourth follow-up. Attrition was uncorrelated with treatment status in all follow-ups Although attrition rates were low, a minimum of 9% (in the first follow-up) and a maximum of 16% (in the second follow-up) of the firms interviewed in the follow-up surveys had closed their businesses and not started new ones. This reduced the number

of people in our samples who currently operated firms, but there were no differences between groups in closure rates.

7.2 Methodology

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

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

where $Treat1$, $Treat2$ and $Treat3$ are assigned to the BRC assistance, BRC plus TPIN assistance, and BRC plus bank information session treatments, respectively; $y_{i,0}$ is the baseline value of the outcome of interest (included to increase power, per McKenzie 2012); and $d_{i,s}$ are randomisation strata dummies (Bruhn and McKenzie 2009).

We estimate equation (1) from the four follow-up surveys to analyse the impact of the interventions. We show in the results that we cannot reject equality of the treatment effects over time, and therefore we pool impacts over the four follow-ups to maximise statistical power. The coefficients β_1, β_2 and β_3 then provide the intent-to-treat average effects post-treatment. Since randomisation is at the individual level within strata, we use robust Eicker–White standard errors for $\varepsilon_{i,t}$. 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.

In estimating business outcomes, a key issue is how to handle closed businesses. Our approach is to code the outcomes for these firms as zero.[5] That is, a business that has closed is assumed to no longer have a formal licence, a business bank account or other such outcomes. For several savings outcomes – for which it is possible 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.[6] There was no impact of any of the different treatments on business closure rates.

To test the significance of families of outcomes in a single aggregate, we follow the methodology of Kling and colleagues (2007). For each family of outcomes, we convert all outcomes so the sign of all of the variables in the 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. When considering the heterogeneity of outcomes, we follow Fink and colleagues (2014) and use the Benjamini and Hochberg (1995) method for limiting the false discovery rate.

[5] We obtain similar results if we treat the closed businesses as attrition.

[6] Regressions use the sample of existing businesses at follow-ups for the dummies, 'Has a bank account (personal or business)', 'Saves at home', and 'Save in a ROSCA or SACCO'. Although these are not business-specific indicators (a person without a business could have an account), we have no follow-up data on these for respondents without operating businesses. We get similar results when using the full sample of non-attrition for these surveys (i.e. when we assume a zero for respondents who no longer run a business).

7.3 Results

7.3.1 Programme take-up

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

The BRC take-up rates are extremely high compared to the formalisation rates in other studies that have offered assistance with formalisation (de Mel et al. 2012; Alcázar et al. 2010; Jaramillo 2009; Andrade et al. 2016; de Giorgi and Rahman 2013; Benhassine et al. 2017). With the exception of de Giorgi and Rahman (2013), all the existing studies have focused on tax or municipal registration, which involves ongoing costs to the firm in the form of taxes. De Giorgi and Rahman (2013) provide information to aid in business registration, but do not provide the costless assistance 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 formalisation status that offers potential benefits (such as bank access), low transaction costs and no implied future cost that is responsible for the high BRC take-up rates.

The remainder of Table 4 examines differences in take-up rates by gender and location. Take-up rates are similar by gender for business registration, when offered alone or with the bank information session. However, there is a significant difference in take-up of the BRC when offered together with TPIN assistance: only 58 per cent of women obtained a BRC in this case, compared to 76 per cent of male owners.

Table 5 examines the reasons for not accepting assistance in obtaining a BRC. Across all treatment groups, the main reason is that the business has closed or moved, or could not be located to offer the assistance. This accounts for about two thirds of the gender difference in take-up of the BRC under the BRC and TPIN treatment. Since the gender difference in closure or failure to locate is much higher for this treatment group than the others, it could reflect simple chance. There are no differences by location in BRC take-up rates in any of the three treatment groups, despite the implied cost savings being much greater in Lilongwe than Blantyre. This suggests that it is the personal assistance and information provided, rather than cost savings, that are driving the high take-up.

The take-up rate of the bank information sessions was 72 per cent – above the average of 65 per cent for typical business training programmes reported by McKenzie and Woodruff (2014). An important factor in the high take-up of the sessions was likely their proximity to the firms' place of operations. Of the business owners who participated in NBS Bank information sessions, 89 per cent opened bank accounts in the name of their businesses.

Table 4: Take-up rates

	Received BRC with our assistance					Received TPIN with our assistance			Opened a BBA after IS		
	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				64.1	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 getting a BRC and a TPIN; BRC + IS + BBA denotes assistance with getting a BRC, along with a bank information session and the offer of opening a business bank account at the end of the session. All specifications include strata dummies.

Table 5: Reasons for not accepting BRC

	All treatment groups (N = 2,245)			BRC + TPIN group (N = 293)		
	Male	Female	Diff	Male	Female	Diff
Already registered	0.9	1.2	–0.3	1.7	0.9	0.9
Needed to consult spouse	0.2	2.7	–2.5***	0.6	4.3	–3.7**
Failed to locate/closed/moved	14.5	16.3	–1.8	18.2	29.9	–11.7**
Refusal	0.9	1.0	–0.1	0.0	0.9	–0.9
No info on reason	1.9	2.0	–0.1	3.4	6.0	–2.6
Accepted registration	81.6	76.7	4.9***	76.1	58.1	18.0***

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

7.3.2 Impacts on formalisation and the tax base

Table 6a reports the impacts of our different treatments on the three key dimensions of formality. These measures were self-reported by business owners in the four follow-up surveys. Although we asked business owners to show their certificates for each dimension, a significant number – including those to whom we delivered BRCs – said they had them in a secure place (e.g. at home). Hence, reporting only on certificates shown to enumerators would underestimate the impacts on these measures.

We see that obtaining a BRC is rare in the absence of our treatment – only 8 per cent of control group firms had a BRC on average at follow-ups. All three treatments have large and significant impacts on a firm's likelihood of having a BRC, varying from a 52 percentage point increase for the BRC-only assistance to a 64 percentage point increase for the BRC plus bank information session treatment. This provides a powerful first stage to enable us to measure the impact of business registration on firm outcomes. It also shows that the 'top-up' offering of a bank information intervention led to a 12 percentage point increase in the likelihood of formalising.

However, the treatment effects are lower than our take-up numbers suggest, and we can no longer reject equality of effects for the BRC-only versus BRC plus TPIN treatments. One third of the difference in treatment effects, compared to the take-up rate, can be explained by the counterfactual provided by the control group, which suggests that 8 per cent of those treated would have obtained a BRC without our assistance. In line with that, about 3.5 per cent of those in treatment groups who did not take our assistance reported in the survey that they had registered during the period; this may be associated with people who went on their own, but could also suggest a measurement problem (which could also apply to the control group).

This BRC registration of people who had not received our support attenuates the difference between the take-up and the treatment effects. The remaining gap is mostly driven by those our records indicate received a BRC with our assistance, but reported in the survey that they did not have one. This accounts for about two thirds of the remaining gap, with the rest being explained by firms with BRCs that had closed down or attrited.

The survey data confirm that treatment effects on other forms of registration are small. City Council licences are common, with 64 per cent of the control group having one, but there is no significant difference across treatment groups. Receiving a BRC is therefore

not changing registration behaviour on this other margin. Recall that the BRC is a prerequisite for being able to register for a TPIN. We see that only 6 per cent of the control group obtained a TPIN. We see statistically significant (at 10%) but small effects of the BRC treatment on the likelihood of reporting having a TPIN; but, surprisingly, no impact of the BRC plus TPIN treatment. This suggests that those who were assisted to get the TPIN were those few firms that were going to do so anyway; and that, at most, the BRC assistance helped speed the process of tax registration for a few other firms that were otherwise going to register for taxes. It could also indicate that knowledge about the tax registration process increased in the BRC plus TPIN group and we are capturing a more accurate measure of tax registration in that group than in others.

Table 6b shows how these formalisation results vary by gender. In contrast to the administrative data, we find, in all three treatments, that female business owners have significantly lower treatment effects on obtaining a BRC. One part of the gap is explained by differences that already existed in the administrative data, even if not statistically significant for two of the treatment groups. Two thirds of the remaining gender difference in treatment effects, when compared with the administrative data, is explained by the higher rate of business closure amongst female-owned firms; there is a 5 percentage point difference between female-owned and male-owned enterprises amongst those in the treatment groups that accepted the certificate.

Firms not reporting in surveys on BRCs delivered with our assistance are more common for women, which largely explains the rest of the gender gap. Differences between men and women in the control group are small and attenuate the effect, and there is no significant gap on attrition. Nevertheless, we still find sizeable and significant impacts of our treatments on the likelihood that female owners have a BRC, enabling us to estimate the effects of business registration separately for male- and female-owned businesses.

Table 6a: Impacts on formalisation

	Z-score	BRC	TPIN	City Council
	Data pooled for all follow-up surveys			
Panel A: Full sample				
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
	0.000	*0.000*	*0.134*	*0.479*
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
	0.000	*0.000*	*0.965*	*0.766*
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
	0.000	*0.000*	*0.250*	*0.479*
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: Specifications include strata dummies, a variable representing the initial outcome at baseline and a variable indicating missing data at baseline. Z-score index constructed following Kling and colleagues (2007). Adjustments to control false discovery rate are computed following Benjamini and Hochberg (1995). 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 7b: Impacts on formalisation

	Z-score	BRC	TPIN	City Council
	Data pooled for all follow-up surveys			
Panel B: Results by gender				
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
	0.000	*0.000*	*0.048*	*0.420*
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
	0.000	*0.000*	*0.388*	*0.511*
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
	0.000	*0.000*	*0.086*	*0.368*
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
	0.037	*0.047*	*0.192*	*0.654*
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
	0.000	*0.000*	*0.192*	*0.257*
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
	0.005	*0.006*	*0.198*	*0.511*
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

	Z-score	BRC	TPIN	City Council
	Data pooled for all follow-up surveys			
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: Specifications include strata dummies, a variable representing the initial outcome at baseline and a variable indicating missing data at baseline. Panel B includes a dummy for 'female'. Z-score index constructed following Kling and colleagues (2007). Adjustments to control false discovery rate are computed following Benjamini and Hochberg (1995). P-values and q-values are reported below standard errors (*q-values* in italics). Clustered standard errors by firms are in parentheses. *, ** and *** denote significant at the 10%, 5% and 1% levels, respectively.

7.3.3 Building a culture of formality, reduced harassment and access to formal markets

Table 7a shows that firms offered business registration assistance had no change in developing more formal business practices, such as providing receipts to customers. For this reason, to justify the interventions, we would also likely see increased trust in state-level institutions three years after the interventions, including the offering of registration without fear of being asked for taxes. Table 7a shows that registering for the BRC alone does not have any effects at this margin with measures of trust in institutions.[7] This may also follow from having had no effect on average in reducing harassment, including inspections from various sources, being asked for bribes, threats to shut down the business, confiscation or sexual harassment.[8]

Table 8 presents the impacts of offering BRC-only assistance on accessing formal markets – a presumed benefit of formalisation, as described in Table 1. Although firms are indeed accepting BRC alone and are more likely to identify these benefits of formalisation, there seems to be no change in accessing formal markets, including opening a business bank account, obtaining a bank loan, registering land in the name of the business, obtaining export licences, applying to private tenders, using government programmes or being an MCCCI member. Formalisation alone is not sufficient to drive firms to look for these formal markets, which suggests firms face other constraints in access.

For example, qualitative research shows a consensus amongst respondents that bank loans are not a realistic alternative to already common practices, such as village savings and loan associations or ROSCAs. One respondent noted that the information session presented a vague list of criteria that one must fulfil to be approved for a loan, including account use (withdrawals and deposits) and the need for collateral. These formal requirements are in competition with a wide network of lending through village savings

[7] 'Trust in institutions' includes confidence in churches, courts, police, national government and family. 'Trust in institutions business' also includes confidence in the City Council and tax authorities.

[8] The only exception not shown in Table 7b is for male entrepreneurs, where there is a significant reduction in tax inspections, confiscation and other types of harassment following the BRC-only or BRC plus bank information session interventions (although not the BRC plus TPIN intervention).

and loan associations, village savings banks and ROSCAs, which respondents view as less risky than formal banks (e.g. in the collection of collateral and collection of outstanding payments).

Table 8a: Impacts on trust and formal business practices

	Trust		Formal business practices	
	Trust in institutions	**Trust in institutions business**	**Firm provides formal receipts**	**Business has written annual budget**
Panel A: Full sample				
Treatment 1: BRC	–0.006	–0.007	–0.010	–0.014
	(0.013)	(0.014)	(0.014)	(0.011)
	0.814	0.716	0.456	0.199
	–0.014	*–0.015*	*0.513*	*0.358*
Treatment 2: BRC + TPIN	–0.014	–0.015	–0.015	–0.007
	(0.018)	(0.018)	(0.018)	(0.014)
	0.641	0.572	0.402	0.638
	–0.003	*–0.002*	*0.513*	*0.638*
Treatment 3: BRCE + IS + BBA	–0.003	–0.002	0.012	0.015
	(0.012)	(0.012)	(0.013)	(0.010)
	0.829	0.895	0.356	0.125
	0.836	*0.895*	*0.513*	*0.282*
Control group mean	0.578	0.546	0.211	0.159
Sample size	10,900	10,900	10,900	10,900
p-value: Treatment 1 = Treatment 2	0.662	0.659	0.784	0.597
p-value: Treatment 1 = Treatment 3	0.753	0.667	0.080	0.003
p-value: Treatment 2 = Treatment 3	0.493	0.435	0.117	0.096
p-value test of equality	0.867	0.833	0.234	0.024
p-value test of equality of treatment effects over time				
Treatment 1	0.572	0.555	0.559	0.970
Treatment 2	0.818	0.816	0.779	0.197
Treatment 3	0.620	0.706	0.668	0.663

Table 9b: Impacts on harassment

	Harassment									
	Z-score harassment	**No municipal inspection**	**No tax inspection**	**No other kind of inspection**	**Asked for bribe**	**Confident to say no to bribes**	**No threats of shutdown**	**No confiscation**	**No sexual harassment**	**No other harassment**
	Data pooled for all follow-up surveys									
Panel A: Full sample										
Treatment 1: BRC	–0.002	0.006	–0.008	–0.001	–0.004	–0.000	0.003	0.006	–0.004	0.000
	(0.030)	(0.015)	(0.014)	(0.015)	(0.014)	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)
	0.953	0.677	0.560	0.933	0.751	0.997	0.838	0.661	0.795	0.996
	0.992	*0.871*	*0.653*	*0.933*	*0.845*	*0.997*	*0.954*	*0.915*	*0.956*	*0.996*
Treatment 2: BRC + TPIN	0.000	0.003	0.004	–0.002	–0.011	0.006	–0.001	0.007	–0.009	0.002
	(0.038)	(0.019)	(0.017)	(0.018)	(0.018)	(0.020)	(0.018)	(0.017)	(0.018)	(0.018)
	0.992	0.884	0.811	0.920	0.541	0.763	0.954	0.687	0.601	0.897
	0.992	*0.884*	*0.811*	*0.933*	*0.695*	*0.890*	*0.954*	*0.915*	*0.902*	*0.996*
Treatment 3: BRCE + IS + BBA	0.027	0.003	0.017	0.027**	0.008	0.012	0.003	0.019	0.000	0.010
	(0.027)	(0.014)	(0.012)	(0.013)	(0.012)	(0.014)	(0.012)	(0.012)	(0.012)	(0.013)
	0.304	0.808	0.164	0.033	0.499	0.380	0.839	0.117	0.982	0.458
	0.487	*0.884*	*0.230*	*0.078*	*0.695*	*0.531*	*0.954*	*0.352*	*0.982*	*0.996*
Control group mean	0.000	0.709	0.809	0.795	0.826	0.597	0.806	0.826	0.797	0.782
Sample size	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900
p-value: Treat 1 = Treat 2	0.955	0.860	0.481	0.974	0.711	0.762	0.830	0.959	0.749	0.899
p-value: Treat 1 = Treat 3	0.275	0.830	0.040	0.027	0.291	0.384	0.979	0.290	0.754	0.459

	Harassment									
	Z-score harassment	**No municipal inspection**	**No tax inspection**	**No other kind of inspection**	**Asked for bribe**	**Confident to say no to bribes**	**No threats of shutdown**	**No confiscation**	**No sexual harassment**	**No other harassment**
	Data pooled for all follow-up surveys									
p-value: Treat 2 = Treat 3	0.443	0.979	0.423	0.082	0.245	0.745	0.834	0.451	0.566	0.671
p-value test of equality	0.617	0.982	0.195	0.049	0.579	0.773	0.993	0.423	0.941	0.844
p-value test of equality of treatment effects over time										
Treatment 1	0.037	0.026	0.615	0.113	0.398	0.143	0.006	0.070	0.102	0.513
Treatment 2	0.214	0.567	0.447	0.530	0.488	0.029	0.488	0.289	0.146	0.445
Treatment 3	0.487	0.229	0.649	0.850	0.591	0.197	0.485	0.736	0.569	0.696

Notes: Specifications include strata dummies, a variable representing the initial outcome at baseline, and a variable indicating missing data at baseline. Z-score index constructed following Kling and colleagues (2007). Adjustments to control false discovery rate computed following Benjamini and Hochberg (1995). 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 10: Impacts on formal markets

	Has a business bank account	Borrowed bank loan past 6 months for business	Belongs to MCCCI	Has export licence	Participates in government tenders	Location of the business has changed	Social networks
	Data pooled for all follow-up surveys						F2, F3, F4
Panel A: Full sample							
Treatment 1: BRC	0.017**	–0.007	0.002	–0.003	–0.004	–0.009	0.000
	(0.008)	(0.005)	(0.002)	(0.003)	(0.008)	(0.012)	(0.009)
	0.031	0.149	0.461	0.392	0.570	0.432	0.999
	0.047	*0.268*	*0.465*	*0.549*	*0.802*	*0.504*	*0.999*
Treatment 2: BRC + TPIN	0.010	–0.006	0.002	–0.002	0.003	0.008	0.005
	(0.011)	(0.007)	(0.003)	(0.005)	(0.011)	(0.016)	(0.013)
	0.338	0.423	0.465	0.674	0.802	0.617	0.709
	0.380	*0.476*	*0.465*	*0.674*	*0.802*	*0.617*	*0.999*
Treatment 3: BRCE + IS + BBA	0.390***	–0.006	0.008***	0.007*	0.003	0.009	–0.008
	(0.012)	(0.005)	(0.002)	(0.003)	(0.007)	(0.011)	(0.008)
	0.000	0.238	0.001	0.060	0.664	0.401	0.345
	0.000	*0.357*	*0.004*	*0.139*	*0.802*	*0.504*	*0.690*
Control group mean	0.041	0.032	0.006	0.019	0.073	0.127	0.082
Sample size	10,900	10,900	10,900	10,900	10,900	10,900	8,070
p-value: Treatment 1 = Treatment 2	0.520	0.794	0.844	0.824	0.489	0.282	0.706
p-value: Treatment 1 = Treatment 3	0.000	0.733	0.010	0.004	0.279	0.080	0.331
p-value: Treatment 2 = Treatment 3	0.000	0.971	0.078	0.058	0.954	0.954	0.295
p-value test of equality	0.000	0.528	0.007	0.026	0.739	0.344	0.597

	Has a business bank account	Borrowed bank loan past 6 months for business	Belongs to MCCCI	Has export licence	Participates in government tenders	Location of the business has changed	Social networks
	Data pooled for all follow-up surveys						**F2, F3, F4**
p-value test of equality of treatment effects over time							
Treatment 1	0.037	0.014	0.621	0.121	0.353	0.486	0.875
Treatment 2	0.634	0.176	0.388	0.837	0.892	0.835	0.741
Treatment 3	0.000	0.004	0.410	0.320	0.821	0.387	0.430

Notes: Specifications include strata dummies, a variable representing the initial outcome at baseline, and a variable indicating missing data at baseline. Z-score index constructed following Kling and colleagues (2007). Adjustments to control false discovery rate are computed following Benjamini and Hochberg (1995). 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.

7.3.4 Impacts of targeted programming

Formalisation and the construction of a database of firms in order to develop targeted policy and programmes was tested by inviting firms listed in the database to information sessions with a local bank. During the sessions, the entrepreneurs connected with the bank's small and medium enterprise department to access a business bank account (and, through that contact, access complementary offerings – e.g. enterprise loans and insurance products).

The finding that entrepreneurs are more likely to register when offered these additional services than when offered the BRC alone or the BRC plus TPIN (Table 6a) suggests there is higher demand for formal status when business owners understand the potential benefits of targeted interventions.

Tables 11a and 11b examine the impacts on access to finance of combining business registration assistance with a targeted information session from a bank. This intervention was successful in increasing the likelihood that individuals would have any bank account (by 18 percentage points, relative to a control mean of 65%) and especially the likelihood that entrepreneurs would have a business bank account (by 39 percentage points, relative to a control mean of only 4%). This is accompanied by a lower likelihood of either saving at home (by 7 percentage points, relative to a control mean of 44%) or saving through ROSCAs and SACCOs (by 3 percentage points, relative to a control mean of 73%).

In contrast, being offered assistance in obtaining a BRC alone has limited impact on savings. There is a significant but relatively small increase (2 percentage points) in the likelihood of having a business bank account, which is significantly smaller than for the assistance combining BRC assistance with bank information sessions.

Although the take-up of business bank accounts is 64 per cent amongst those offered information sessions with NBS Bank (Table 4), the treatment effects are smaller (39 percentage points). The control group mean is 4 per cent, but there is a similar percentage of entrepreneurs with business bank accounts in the bank information sessions group who did not participate in NBS Bank's programme. The difference of 25 percentage points is for other reasons: about 80 per cent of the difference is explained by people who still operate businesses but do not report having a business bank account in the survey. In contrast to the BRC assistance intervention (the registration certificates do not expire), this might not be a measurement problem, because some business owners could have closed bank accounts since the intervention. The remaining difference is explained by businesses closing.

The bank information sessions emphasised the importance of separating household and business expenses, and that having a separate business bank account could facilitate this process. Qualitative interviews with respondents show this emphasis was well heeded: all respondents reported greatly valuing the information sessions in which they had participated, and spoke especially of the value of learning about the separation of money. One woman stated:

> I'm able to follow on how to separate business money and household money, and after the training I sat down with my husband because I was taking notes on what we were learning and he agreed…and that is what we follow right now.

Table 9b shows a significant 6 percentage point reduction in the likelihood of mixing of household and business expenses for the BRC plus bank information session treatment group (relative to a control mean of 29%). We see this treatment group as being more likely to have an account used only for business purposes. At the same time, this is well below the penetration of business accounts for this group. Indeed, 47 per cent of the firms with business bank accounts in this group used the funds saved there for personal expenses. We also see an 8 percentage point increase in the likelihood of keeping financial records for the group offered bank information sessions. There are few impacts of the other two treatments.

In Table 9b, we examine the impacts of the interventions on the use of credit and insurance. On average, there is a marginally significant 24 per cent effect on the amount borrowed in those offered BRC plus the bank information session. Firms in the group offered bank information sessions seem to be less credit constrained than those in the control group or in the other groups, as there is an economically and statistically significant 16 per cent impact of the activities on the amount of money they said their firms could borrow if facing an unexpected need extra funds for the business within two weeks. This increased financing capacity seems to be driven by the opportunity to use formal financing institutions, rather than depending on family and friends: 59 per cent of businesses in the group offered bank information sessions said they would borrow through a bank to respond to this unexpected financing need, compared to 46 per cent of businesses in the control group.

The treatment group offered BRC and bank information sessions, also had significantly large impacts on the use of insurance schemes in the name of the business. The control group's access to insurance schemes was 1 per cent three years after the intervention, compared to 9 per cent for the group offered bank information sessions. Of the firms in the group offered bank information sessions with insurance schemes, 56% had insurance against weather incidents, 24% had fire insurance,[9] 20% had theft insurance and 16% had life and/or health coverage for the business owner.

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

Table 11a: Impacts on access to finance

	Z-score multiple A2F	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
	Data pooled for all follow-up surveys						
Panel A: Full sample							
Treatment 1: BRC	0.009	0.012	0.017**	–0.004	–0.004	0.007	0.009
	(0.026)	(0.018)	(0.008)	(0.010)	(0.017)	(0.015)	(0.018)
	0.733	0.505	0.031	0.715	0.792	0.656	0.603
	0.824	*0.505*	*0.047*	*0.715*	*0.792*	*0.738*	*0.679*
Treatment 2: BRC + TPIN	0.024	0.018	0.010	–0.022*	–0.014	0.020	0.017
	(0.033)	(0.023)	(0.011)	(0.013)	(0.022)	(0.019)	(0.023)
	0.472	0.425	0.338	0.084	0.531	0.289	0.467
	0.607	*0.478*	*0.380*	*0.095*	*0.598*	*0.371*	*0.600*
Treatment 3: BRCE + IS + BBA	0.241***	0.181***	0.390***	0.152***	0.071***	0.033**	0.186***
	(0.022)	(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
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.017*	*0.000*
Control group mean	0.000	0.654	0.041	0.130	0.440	0.731	0.631
Sample size	9,438	9,438	10,900	10,900	9,438	9,438	9,438
p-value: Treat 1 = Treat 2	0.655	0.779	0.520	0.154	0.671	0.489	0.746
p-value: Treat 1 = Treat 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

	Z-score multiple A2F	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
	Data pooled for all follow-up surveys						
p-value test of equality of treatment effects over time							
Treatment 1	0.749	0.672	0.037	0.182	0.216	0.486	0.610
Treatment 2	0.455	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, and a variable indicating missing data at baseline. Z-score index constructed following Kling and colleagues (2007). Adjustments to control false discovery rate computed following Benjamini and Hochberg (1995). 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 12b: Impacts on access to finance

	Amount that business can borrow in 2 weeks (US$)	Amount borrowed (US$)	Bank contacted the firm	Amount in bank savings (US$)	Has insurance for business	Does not take business money for the household	High relative savings	Business keeps financial records
Panel A: Full sample								
Treatment 1: BRC	–10.174	13.380	0.002	–17.560	0.004	–0.010	–0.002	0.032*
	(34.061)	(14.912)	(0.013)	(23.705)	(0.003)	(0.014)	(0.017)	(0.017)
	0.765	0.370	0.888	0.459	0.202	0.491	0.913	0.067
	0.765	*0.370*	*0.888*	*0.516*	*0.283*	*0.553*	*0.913*	*0.092*
Treatment 2: BRC + TPIN	–31.505	18.367	0.014	15.738	0.008	–0.007	0.003	–0.026
	(46.437)	(19.850)	(0.018)	(34.799)	(0.005)	(0.019)	(0.023)	(0.022)
	0.498	0.355	0.431	0.651	0.129	0.719	0.905	0.243
	0.580	*0.370*	*0.539*	*0.651*	*0.283*	*0.719*	*0.913*	*0.243*
Treatment 3: BRCE + IS + BBA	91.969***	19.137*	0.090***	44.334	0.079***	0.057***	0.031*	0.081***
	(33.942)	(11.392)	(0.013)	(41.621)	(0.005)	(0.013)	(0.016)	(0.015)
	0.007	0.093	0.000	0.287	0.000	0.000	0.052	0.000
	0.009	*0.140*	*0.000*	*0.369*	*0.000*	*0.000*	*0.066*	*0.000*
Control group mean	570.947	79.00	0.100	179.0	0.009	0.287	0.527	0.457
Sample size	10,900	10,900	5,350	10,900	10,900	10,900	10,900	10,900
p-value: Treatment 1 = Treatment 2	0.634	0.822	0.497	0.326	0.482	0.867	0.839	0.010
p-value: Treatment 1 = Treatment 3	0.001	0.705	0.000	0.116	0.000	0.000	0.035	0.002
p-value: Treatment 2 = Treatment 3	0.006	0.969	0.000	0.544	0.000	0.000	0.205	0.000

	Amount that business can borrow in 2 weeks (US$)	Amount borrowed (US$)	Bank contacted the firm	Amount in bank savings (US$)	Has insurance for business	Does not take business money for the household	High relative savings	Business keeps financial records
p-value test of equality	0.002	0.372	0.000	0.386	0.000	0.000	0.102	0.000
p-value test of equality of treatment effects over time								
Treatment 1	0.189	0.742	0.987	0.794	0.869	0.750	0.399	0.435
Treatment 2	0.322	0.574	0.330	0.047	0.740	0.777	0.990	0.166
Treatment 3	0.691	0.160	0.000	0.207	0.471	0.581	0.957	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, and a variable indicating missing data at baseline. Z-score index constructed following Kling and colleagues (2007). Adjustments to control false discovery rate computed following Benjamini and Hochberg (1995). 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.

7.3.5 Impacts on business performance

Table 10a examines the impacts of the intervention on business performance, including monthly sales and profits. The intervention that combined BRC assistance with bank information sessions was successful in increasing both sales and profits. The average impact of this intervention on sales and profits, winsorised at 99%, is 20% and 15%, respectively. In contrast, the offer of BRC-only assistance or the combination of BRC and TPIN assistance have no impact on both sales and profits. Being offered the BRC plus bank information sessions leads to significantly higher sales and profits than offering BRC alone. These findings are robust to different measures of business performance, including weekly measures of sales and profits, non-winsorised outcomes and inverse hyperbolic sine transformations.

Table 10b shows the gender differential impacts on business performance. The impacts on the z-scores of sales and profits are not different for men and women. Contrary to a common view in private sector development interventions, this finding shows that the combined BRC and bank information session treatment is effective in increasing female entrepreneurs' sales and profits. The impacts for male-owned firms of this intervention are 17 per cent on sales and 13 per cent on profits. The impacts for female-owned firms are of 28 per cent on sales and 20 per cent on profits, as women catch up from a much lower base in business performance.

The lack of a difference in z-scores by gender suggests that BRC alone is not sufficient to change business performance for men or women. For the latter, the differential impact on sales is significant at the 10 per cent level, but marginally not significant on profits. Given these findings, the difference in impacts on sales and profits between BRC-only assistance and BRC plus bank information sessions is present only for men, not for women.

Table 13a: Impacts on business performance

	Z-score[*; **]	Z-score sales	Z-score profits	Sales (US$)	Sales (US$) winsorised	Profits (US$)	Profits (US$) winsorised
	Data pooled for all follow-up surveys						
Panel A: Full sample							
Treatment 1: BRC	0.008	0.024	–0.009	37.055	19.685	–0.996	1.863
	(0.029)	(0.031)	(0.031)	(63.793)	(43.448)	(9.663)	(7.238)
	0.793	0.442	0.771	0.561	0.651	0.918	0.797
	0.877	*0.590*	*0.830*	*0.724*	*0.715*	*0.918*	*0.797*
Treatment 2: BRC + TPIN	0.030	0.051	0.011	143.657	44.525	2.571	4.407
	(0.040)	(0.045)	(0.041)	(113.816)	(58.201)	(12.255)	(9.787)
	0.453	0.258	0.789	0.207	0.444	0.834	0.653
	0.877	*0.517*	*0.830*	*0.331*	*0.592*	*0.918*	*0.746*
Treatment 3: BRCE + IS + BBA	0.106***	0.118***	0.094***	224.849***	130.636***	26.698***	22.977***
	(0.028)	(0.030)	(0.030)	(69.022)	(40.630)	(9.316)	(6.924)
	0.000	0.000	0.002	0.001	0.001	0.004	0.001
	0.001	*0.000*	*0.006*	*0.003*	*0.002*	*0.007*	*0.001*
Control group mean	0.000	0.000	0.000	731.126	668.128	159.195	152.474
Sample size	10,900	10,900	10,900	10,900	10,900	10,900	10,900
p-value: Treat 1 = Treat 2	0.578	0.559	0.629	0.362	0.672	0.777	0.795
p-value: Treat 1 = Treat 3	0.001	0.003	0.001	0.007	0.008	0.005	0.002
p-value: Treat 2 = Treat 3	0.060	0.130	0.043	0.485	0.130	0.050	0.053
p-value test of equality	0.001	0.001	0.002	0.008	0.007	0.010	0.003
p-value test of equality of treatment effects over time							
Treatment 1	0.839	0.969	0.472	0.868	0.857	0.398	0.598
Treatment 2	0.859	0.716	0.896	0.284	0.759	0.761	0.621
Treatment 3	0.173	0.324	0.152	0.740	0.346	0.310	0.028

Notes: Specifications include strata dummies, a variable representing the initial outcome at baseline, and a variable indicating missing data at baseline. Z-score index constructed following Kling and colleagues (2007). Adjustments to control false discovery rate computed following Benjamini and Hochberg (1995). 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 14b: Impacts on business performance

	Z-score[*; **]	Z-score sales	Z-score profits	Sales (US$)	Sales (US$) winsorised	Profits (US$)	Profits (US$) winsorised
	Data pooled for all follow-up surveys						
Panel B: Results by gender							
Treat 1: BRC	–0.022	0.000	–0.044	–64.228	–34.123	–10.280	–6.876
	(0.042)	(0.045)	(0.043)	(89.485)	(62.204)	(14.082)	(9.971)
	0.606	0.999	0.306	0.473	0.583	0.465	0.491
	0.817	*0.999*	*0.673*	*0.692*	*0.802*	*0.640*	*0.674*
Treat 2: BRC + TPIN	0.019	0.035	0.007	100.668	–9.074	0.680	0.330
	(0.057)	(0.063)	(0.059)	(162.885)	(80.126)	(17.952)	(13.651)
	0.734	0.581	0.906	0.537	0.910	0.970	0.981
	0.817	*0.779*	*0.906*	*0.692*	*0.910*	*0.970*	*0.996*
Treat 3: BRCE + IS + BBA	0.117***	0.137***	0.098**	249.589**	137.709**	27.240**	23.024**
	(0.041)	(0.044)	(0.042)	(102.957)	(60.007)	(13.208)	(9.758)
	0.004	0.002	0.018	0.015	0.022	0.039	0.018
	0.024	*0.011*	*0.068*	*0.042*	*0.048*	*0.086*	*0.034*
Treat 1: BRC * Female	0.075	0.061	0.090	257.575**	136.729*	23.608	22.194
	(0.055)	(0.058)	(0.059)	(123.428)	(82.646)	(18.355)	(14.154)
	0.179	0.297	0.128	0.037	0.098	0.198	0.117
	0.491	*0.741*	*0.353*	*0.081*	*0.180*	*0.312*	*0.184*
Treat 2: (BRC + TPIN) * Female	0.028	0.041	0.010	109.099	136.831	4.749	10.344
	(0.078)	(0.086)	(0.080)	(216.548)	(113.846)	(22.839)	(18.978)
	0.716	0.637	0.897	0.614	0.229	0.835	0.586
	0.817	*0.779*	*0.906*	*0.692*	*0.361*	*0.970*	*0.716*
Treat 3: (BRCE + IS + BBA) * Female	–0.026	–0.047	–0.012	–61.304	–17.196	–1.295	–0.059
	(0.054)	(0.057)	(0.057)	(126.132)	(76.049)	(18.085)	(13.430)
	0.624	0.404	0.833	0.627	0.821	0.943	0.996
	0.817	*0.741*	*0.906*	*0.692*	*0.903*	*0.970*	*0.996*
Control group: Male	0.112	0.118	0.106	921.486	822.898	185.967	177.783
Control group: Female	–0.169	–0.179	–0.160	444.180	434.831	118.840	114.324

	Z-score*; **	Z-score sales	Z-score profits	Sales (US$)	Sales (US$) winsorised	Profits (US$)	Profits (US$) winsorised
	Data pooled for all follow-up surveys						
p-value: Treat 1 = Treat 2 for males	0.468	0.583	0.376	0.309	0.750	0.556	0.589
p-value: Treat 1 = Treat 3 for males	0.001	0.002	0.000	0.001	0.003	0.007	0.001
p-value: Treat 2 = Treat 3 for males	0.079	0.099	0.107	0.366	0.057	0.137	0.087
p-value: Treat 1 = Treat 2 for females	0.925	0.816	0.613	0.918	0.771	0.579	0.738
p-value: Treat 1 = Treat 3 for females	0.342	0.490	0.326	0.961	0.755	0.319	0.459
p-value: Treat 2 = Treat 3 for females	0.446	0.812	0.209	0.888	0.930	0.165	0.356
p-value test of equality for males	0.003	0.004	0.004	0.010	0.015	0.041	0.010
p-value test of equality for females	0.081	0.060	0.162	0.012	0.041	0.187	0.091

Notes: Sales and profits are converted from local currency to US dollars. Variables are winsorised at the 99th percentile. Specifications include strata dummies, a variable representing the initial outcome at baseline, and a variable indicating missing data at baseline. Panel B includes a dummy for 'female'. Z-score index constructed following Kling and colleagues (2007). Adjustments to control false discovery rate computed following Benjamini and Hochberg (1995). 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.

8. Challenges in implementation and lessons learned

A key lesson learned from the implementation of a longitudinal study with this population is the challenge in tracking firms' owners. This includes firms that moved outside of the sample area, firms that moved without leaving information to enable follow-up with or contact the owner and firms that permanently closed. Due to these challenges, there was a reduction in sample size during the study period.

The project also experienced respondent fatigue over time, given the number of survey rounds and the length of the survey. This did not differentially impact the treatment groups.

A planned re-registration of firms did not occur during the project lifespan, due to a delay on the part of the Malawi government in requesting re-registration. This had no implications on the completion of project work.

9. Policy implications

In this section, we summarise the key findings of the programme on: (1) increasing business registration; and (2) once businesses have registered, the strength of the four policy reasons discussed in the introduction for promoting firms' entry into a formal status. Although the programme was successful in increasing business registration, we conclude that using only the registration as a means of identifying firms to develop targeted programmes justifies facilitating formalisation processes in a resource-constrained environment.

The four desired outcomes of registration – better standard of living of beneficiaries and their dependents; improved financial performance, investment in the business, survival rate and employment; access to finance, markets and networks; and increased formality, permits and licences, and lower harassment levels – were unrealised outside of the targeted programming. However, targeting programming showed some impact on improving access to finance, with the potential to positively impact business survival through reducing credit constraints and providing a safety net of insurance.

9.1 Formalisation

The BRC take-up rates are extremely high, compared to the formalisation rates in other studies that have offered assistance with formalisation, increasing formalisation by 52 percentage points in the BRC-only group over the control. This may be largely attributed to the fact that almost all the previous studies have focused on tax or municipal registration, which involves ongoing cost obligations to the firm in the form of taxes, but also to the high level of assistance in costless registration to the firm.

Whether the intervention should be adopted requires an examination of the trade-offs between the cost of registration (US$27 per successful registrant under this intervention) and the benefits of a formalisation in the sector. Any private sector development intervention requires dedicated funding and resources that can be directed to a non-governmental organisation or professional company to implement. Contracting of a firm for delivery can be done for the interventions in this study and is being done by governments in West Africa.

The four potential benefits or policy reasons are examined here in turn.

9.2 Building a tax base

As discussed in the context of Tables 6a and 6b, none of the interventions had an impact on tax registration (TPIN), except an economically small effect, of 1 percentage point (20%), of offering BRC alone. More importantly, as Table 11 shows, none of the interventions had an impact on taxes paid in the previous month. Contrary to much of the discourse, these findings suggest that this reason is not sufficient on its own to facilitate formalisation processes, as the implementation of such an effort would result in a limited number of new firms actually paying taxes.

Table 15: Impacts on taxes

	TPIN	Taxes and market fees costs (US$)
Full sample		
Treatment 1: BRC	0.012*	–0.140
	(0.007)	(0.211)
	0.089	0.505
	0.134	*0.569*
Treatment 2: BRC + TPIN	–0.000	–0.342
	(0.009)	(0.237)
	0.965	0.149
	0.965	*0.335*
Treatment 3: BRCE + IS + BBA	0.008	0.398
	(0.006)	(0.304)
	0.194	0.191
	0.250	*0.344*
Control group mean	0.056	3.383
Sample size	10,900	10900
p-value: Treatment 1 = Treatment 2	0.179	0.289
p-value: Treatment 1 = Treatment 3	0.561	0.048
p-value: Treatment 2 = Treatment 3	0.323	0.013
p-value test of equality	0.273	0.085
p-value test of equality of treatment effects over time		
Treatment 1	0.554	0.803
Treatment 2	0.369	0.997
Treatment 3	0.044	0.189

Notes: Data pooled for all follow-up surveys, unless otherwise noted. Specifications include strata dummies, a variable representing the initial outcome at baseline, and a variable indicating missing data at baseline. Z-score index constructed following Kling and colleagues (2007). Adjustments to control false discovery rate computed following Benjamini and Hochberg (1995). 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.

9.3 Building a culture of formality without fear of retaliation

A second reason for seeking to bring firms on board to a formal status is to develop a culture of formality in a country where the state wants to make formal status the norm and wants firms to build trust in the rule of law in this process. However, we find that registering for the BRC alone has no effects on measures of trust in institutions. This may follow from having had no effect, on average, on reducing harassment, including

inspections from various sources, being asked for bribes, receiving threats to shut down the business, confiscation or sexual harassment.[10]

9.4 Access to formal markets

A third reason for seeking to bring firms into a formal status is constructed around the argument that firms want to formalise in order to access formal markets, and it is only the high cost and processing time that hinder them from doing so. Thi reason would justify investments in streamlining processes, such as setting up online systems, reducing costs, and reducing the number of registration procedures. This was the main reason behind Malawi's reforms to computerise its business registration processes and efforts to reduce the number of business registration procedures.

Our interventions make it even easier, in terms of processes, for entrepreneurs to formalise. However, there seems to be no change in access to formal markets, including opening business bank accounts, applying for bank loans, registering land in the name of a business, obtaining export licences, applying to private tenders, using government programmes or being a member of the MCCCI. Formalisation alone is not sufficient to drive firms to look for these formal markets, which suggests that they face other constraints in access.

9.5 Offering of target interventions when registered

A final reason to bring firms on board is to construct a database of firms for targeted policymaking and programming. This list of firms, without association to taxes, allows collection of basic information (e.g. sector, location), providing a sample frame for more extensive firm-level data collection and using this information to develop targeted policies and interventions. Our study shows that a targeted programme of inviting firms listed in such a database to an information session at a local bank improves access to business bank accounts, savings for business purposes and access to insurance products, and thus lends credence to the theory that registration can create more targeted policies and programmes.

9.6 Conclusion

Many governments around the world are trying to make the initial business registration process as cheap and simple as possible. We identified an effective, replicable design comprising outreach to informal firms and support for the steps of formalisation. The interventions used in this evaluation cost much less than the typical private sector development intervention and could be a replicable mechanism for spurring formality.

This model of assisting firms with business registration has been followed in pilots in Benin, and now in a number of countries that have the Organization for the Harmonization of Business Law in Africa's simplified regime of business registration. In Malawi, the new online system has great potential to reduce the costs of registration

[10] The only exception not shown in Table 7b is for male entrepreneurs, where there is a significant reduction in tax inspections, confiscation and other types of harassment following the BRC-only or BRC plus bank information session interventions (not when offered assistance in obtaining BRC and TPIN).

more in line with this intervention. For these gains to be realised, the system must be adaptable to the country's current financial and computer literacy levels; thus, our proposed intervention, coupled with appropriately targeted programmes, remains relevant.

However, formality alone is not enough to achieve the desired policy benefits. This study shows that additional actions are needed to lead firms to increase their likelihood of registering for taxes as they grow. Moreover, the study shows the importance of addressing complementary constraints when developing investment climate interventions. Facilitating business registration may not be sufficient on its own to achieve effects on access to financial services; but complementing that support by offering the entrepreneur access to the small and medium enterprise department of a bank allows for impacts on various access to finance dimensions, including increasing access to business bank accounts and insurance.

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