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SME Registration Evidence from a Randomized Controlled Trial in Bangladesh

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Abstract

Informality is pervasive in developing countries. In Bangladesh, the majority of firms are informal and as such they might not have access to prime markets, while lowering the tax base. The authors implemented an information campaign on registration, including both the step-by-step procedures and the potential benefits from registration. They find that the treatment made firms more aware of the procedures, but had no impact on actual registration. The results point toward potentially low benefits and high indirect costs of registration as the main barriers to formality (e.g. access to markets, taxation, labor and product regulations).

SME REGISTRATION
EVIDENCE FROM A RANDOMIZED CONTROLLED TRIAL
IN BANGLADESH[*]

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1 Introduction

Firms' informality is pervasive in developing countries. Often firms are not registered with business registration or tax authorities. The 2010 census of 55,000 small and medium enterprises (SMEs) in 19 major district towns in Bangladesh suggests that about 70% of firms are informal, according to either their business or tax registration status. It is widely known that informality decreases with the size and performance of firms, which suggests that formality might cause better economic performance. Clearly this might not be the case; better performing firms might simply decide to be formal. This still leads to the question of why so many firms remain informal. A 14-country survey of informal firms by the World Bank suggests that the lack of information about the registration process and the time it takes to register a business are two leading causes for firms to operate informally. A 2008 International Finance Corporation (IFC) survey of SMEs in Bangladesh suggests that while the majority of the businesses believe that it is better to register their business with the registration authority, named the Registrar of Joint Stock Companies and Firms (RJSC), and operate formally, the cost to register a business, the corruption and the complicated registration processes keep many from becoming formal. In contrast to these survey findings, however, there is a growing body of evidence suggesting that although easier, less costly, and speedier registration procedures cause a modest increase in registration, direct incentives are more effective (McKenzie and Sakho, 2010; Bruhn, 2011; Kaplan, Piedra, and Seira, 2011; de Mel, McKenzie, and Woodruff, 2012). Building on a major business registration reform in Bangladesh that substantially reduces the time, complexity, and hidden costs of registering a business, our intervention aims to encourage SME registration through a targeted information campaign. The information campaign is meant to raise awareness of the potential benefits of registration and clarify the registration procedures implemented with the recent registration reforms.

There are clear legal benefits of registration, starting from name protection to easier access to legal authorities in case of controversies. In terms of potential economic benefits, one can imagine that registered firms have better access to markets, both financial and credit ones, can stipulate formal contracts and be better protected against fraudulent behavior of third parties. On the other hand, one needs to consider that associated with registration there are both direct and indirect costs. Direct costs are often small as in our current case post-reform, while indirect costs can be substantial due to the higher monitoring by the relevant institutions, including the tax authority, which would inevitably raise the (expected) tax burden on the registered firm. If such indirect costs are large compared to direct costs and potential benefits, a reduction in the direct costs of registration will have a negligible effect on actual registration. At the same time the potential economic benefits of formality might be small or too uncertain. One needs to consider that the low performing firms might disappear if registration were to be mandatory and severely enforced, however losing the left tail of the distribution of firms in terms of profitability might be a positive outcome in the longer term as the more productive, and larger firms, already

registered or at the margin of such choice would not have to face "unfair" competition from informal firms with low productivity. Another important point to take into account is that the government also loses a large share of tax revenues due to unregistered economic activity.

Our intervention aims at understanding whether the lack of information on the process and the potential benefits of registration constitute a significant barrier to formalization. We therefore implement a randomized controlled trial in Bangladesh where we provide face-to-face information to randomly chosen firms. The intervention consists of one visit by a facilitator to the informal firms, on which we have previously collected baseline information. Our analysis focuses first on whether the information campaign was somewhat successful in terms of exits from informality; if such a first stage appears significant, then one can investigate the causal relationship between registration and economic performance. Unfortunately, our results are discouraging given that our information campaign had a positive and significant effect on the knowledge of the registration procedures but no effect (both economic and statistically) on actual business registration. Very few firms, below 5%, register both in the treatment and control group, and we estimate a "precise" zero effect.

Although disappointing, we take this result as consistent with previous evidence and once again suggestive that the actual barriers to registration have little to do with the direct costs of emerging from informality and most likely have to do with the indirect costs associated with it, in particular in an environment where the density of small/low productivity firms seems rather high, and/or with low benefits of formalization.

The rest of the paper proceeds as follows: in Section 2 we sketch a conceptual framework on the decision to register; Section 3 describes the institutional context, while in Section 4 we present our intervention. Section 6 presents our empirical analysis; and finally Section 7 concludes.

2   A Narrative on the Decision to Register

A firm's decision to register rests upon the comparison of costs and benefits. On the one hand, registration can be beneficial as it might allow better access to markets, both goods and financial/credit markets. For example, a registered firm might be able to borrow from a formal lender at a lower cost of capital, access customers in distant markets, and write long-term contracts. On the other hand, there are both direct and indirect costs of registration. Direct costs may include registration fees (monetary contribution), time to register, and the cost of acquiring information about the registration process. Indirect costs could be the costs that the firm has to incur once registered, for example compliance with the labor and goods regulations as well as taxation.

We can then summarize the decision in an expected present value framework as follows:

$$\left(\Pi_f^R - \Pi_f^{NR}\right) > \underbrace{FEES + TIME + INFO}_{\text{Direct Costs}} + \underbrace{COMPLIANCE + TAXATION}_{\text{Indirect Costs}}. \qquad (1)$$

Firm f will register if the discounted present value of profits in the registered state Π^R minus profits in the unregistered state Π^{NR} is larger than the costs, both direct and indirect, e.g. monetary, time and information costs as well as taxation and compliance. Clearly, the difference in profits between the two states accounts for the lower cost of capital, when registered, and the ability of a registered business to access additional markets and a potentially different (and larger) set of players.

If firms are credit constrained, then the monetary $FEES$ can contribute substantially to the inability to register. We should expect, other things equal, less constrained firms to register; a similar argument would apply to time constraints, due to the size or business process of the firm. However, we also need to consider that the availability of information may or may not be highly correlated with the degree of credit to which a firm has access. The intervention we implement in this work aims mainly at increasing the amount of information on registration available to the firm. At the same time, one can think, that by informing firms' owners about the process, the information also modifies the expectations regarding all the components of costs on the right-hand-side of the inequality. There are other reasons why the first three terms on the right-hand-side of the inequality might be affected by the intervention; in particular $FEES$ are going to be reduced because an intermediary will not be needed, and better knowledge of the actual registration process would also reduce the time it would take to register ($TIME$).

Notice that the registration reform implemented by the Bangladeshi authority, discussed below, is orthogonal to our intervention. The effects of such intervention need not be homogeneous in the population of firms. Indeed, one can conjecture that small-scale production firms will probably not register as the fixed cost of registration will outweigh the benefits, however bigger (unregistered) firms oriented toward bigger markets might be affected positively by the intervention. It is however an empirical issue as there are a large number of conflicting forces at play.

3   Context: The Business Registration Reform in Bangladesh

In 2009-2010, Bangladesh implemented a major information and communication technology (ICT) based business registration reform initiative.[1] Prior to this reform, registering a business required on average 42 days (against the international best practice of 1 day) to complete an 18 steps process of registration. This would require on average 4-5 visits to the agency, sometimes 10 visits, and a 4-5 week payment process of registration fees through a stamp duty

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[1]For the details of the reform see World Bank Group (2013).

procedure. This latter step often involved artificial stamp shortages and stamp price hikes by the officials, and stamp forgery (causing government revenue leakages). Further impediments included hassle and harassment by officials and the need for middlemen at every step to navigate the bureaucratic maze of the registration process and side payments and bribes.

Due to the ICT led reform, the registration time has been reduced to 1 day, and one final visit to pick up the registration certificate. The payment of fees can be completed in 15 minutes through leveraging one of the country's leading bank networks (BRAC bank). The applicant can access a transparent online system in which a business can check its status without the need to visit the agency. Overall, it seems safe to assume a reduced scope of corruption due to limited interactions with the officials.

4   Intervention

4.1   Information campaign

We implemented an information experiment around this business registration reform to test if a simplified registration regime would encourage informal firms to register and become formal once they learn how to register and about the potential benefits of registration.

We extracted a sample of informal firms (3,000) from two waves of the IFCs quarterly Business Confidence Surveys, BCS (Q1 and Q2, 2009) and IFCs Informality Survey of 2010.[2] These are all representative surveys of the businesses operating in Bangladesh.

The data from these surveys form our baseline sample with information regarding business registration as well as several variables concerning business performance and composition. We then randomly assign these firms to a treatment and control group. The assignment is implemented at the firm level.

We then had members of our staff visit the "treated" firms and provide information on the process and potential benefits of registration. In practice the staff members presented a set of potential legal and economic benefits of the registration and the step-by-step registration process. They were equipped with two booklets containing all the information in easy to understand (Bangla) language. The benefits booklet also contained virtual stories of different entrepreneurs, so that the treatment group could relate their personal situations to these fictitious characters. The potential legal and economic benefits of the registration are as follows: protection of business name and goodwill, greater access to bank loans, limited liabilities, continuity of businesses, better business confidence, raising finance, greater ownership rights, and enhancement of social status. The visits were conducted in two waves, according to the original spacing of the BCS and informality surveys. The first set of firms were visited in March-June of 2010, while the remaining firms were visited during January-February of 2011. We then conducted follow-ups (phone) interviews in April-July 2011 for the first batch of firms

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[2]Details of the surveys are available from the authors.

and May-July 2012 for the second one. In practice, this was done so that all the follow-up interviews occurred about one year after treatment.

Notice that our intervention was orthogonal to the simplification and informatization procedure implemented by the RJSC, the new registration procedure was available to all firms irrespective of their treatment status, and at baseline firms indicated that they were unaware of this reform initiative.

5   Treatment and Control Selection

The procedure to randomly select the receivers of the information visits on registration is based on pure random assignment at the firm level, where conditional on the predicted value of an outcome index, i.e. profits in this case, 50% of the subjects are randomized in and the remaining are randomized out.

The procedure consists of running a regression to estimate profits: $\Pi_i = f(x_i) + u_i$, where Π_i are the recorded profits of firm i, the $x's$ include a large series of input in a firm production function, e.g. physical and human capital, labor, credit and so on. We then construct the predicted value of the profits $\widehat{\Pi_i}$, as a dimensionality reduction index (a single index rather than a very large set of $x's$), and based on that index we form pairs of comparable firms and assign one to the treatment and one to the control groups. We repeat such assignment mechanisms several hundreds of times in order to minimize the sum of squares difference between each pair of treatment and controls in the predicted index.

6   Empirical Analysis

6.1   Registration

Given the randomized controlled trial nature of our intervention the identification of the parameter of interests rests on the validity of the randomization procedure. We estimate both simple linear probability and probit models of the registration decision according to whether the firm was assigned to a treatment or control group. The results on registration are somewhat discouraging, but consistent with de Mel, McKenzie, and Woodruff (2012), and summarized in Table 2.

In fact the treatment effect is essentially zero; we find no evidence that providing detailed information on the registration procedures and on the potential benefits increases the probability of registration. In particular the number of registered firms, post treatment, is very low both in the treatment and control group and clearly not differential across the two groups. This result is robust to several specifications, for example adding baseline controls as in column 2-4 as well as to a probit model in columns 5 and 6 or using a propensity score matching method to deal with the sample attrition. We match firms based on their baseline characteristics so that

only matched treated/control pairs contribute to the estimation of the parameters in column 7 of the table.

It is also interesting to note that although the treatment had no effect on actual registration behavior, we find that firms that were treated, i.e. visited by the staff member, are more likely to know (self-declared) how to register (Table 3). When asked why they did not register, the treated firms are about 6-9 percentage points less likely to declare that they do not know how to register. This is a 20 percent difference over the control firms. At the same time, when asked about whether they were visited by a staff member who explained the new registration procedures, treated firms are significantly more likely to respond affirmatively to such a question as shown in Table 4. Ultimately, it appears that treated firms indeed received the treatment but simply did not act upon it. These results lead us to believe that the impediments to registration are not due to the lack of information but rather to other constraints. In particular, given that very few firms register both in the treatment and control group, it seems that the direct costs of registration are not the main issue. It seems plausible that the larger probability of taxation might be the binding constraint. If direct costs were the major constraints then both treatment and control firms should register after the implementation of the RJSC reform as the direct costs went down dramatically. At the same time, it is also possible that the actual or perceived benefits of formalization are simply too low or uncertain for firms to register.

7 Conclusions

Given the prevalence of informality among firms in less developed countries, we implemented a randomized controlled trial to investigate the effects of a face-to-face information campaign about the potential legal and economic benefits of registration, and a step-by-step demonstration on how to register. Our treatment followed the informatization reform of the registration system of RJSC in Bangladesh. The reform replaced lengthy and costly registration procedures with online speedy procedures, causing the number of days required for registering a company to decrease from 42 to just one day. We randomly selected a large number of firms to be visited by our team members. About one year after the visit, we re-interviewed the firms. Although our treatment seems to have affected self-declared knowledge of the registration process, it did not affect registration behavior. We find no evidence that information constraints are the main barrier to registration for informal firms. At the same time, given the overall low registration rate among treatment and control firms, we believe that the main barriers to registration are due to the indirect costs and/or the low perceived benefits of registration. In particular, one needs to consider the higher taxes, and possibly stringent regulations, to which a registered firm would be subject.

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Table 1: Balance table

VARIABLES	(1) Control Number With Non-missing Values	(2) Mean	(3) Standard Deviation	(4) Treated Number of Firms With Non-missing Values	(5) Mean	(6) Standard Deviation
Year that Business Began	1,448	1995	14.41	1,444	1995	14.84
Number of Employees	1,453	26.19	80.89	1,448	22.39	74.05
Percent of Goods Sold Domestically	1,445	99.10**	7.040	1,438	99.58**	5.161
Monthly Revenue	1,440	2.271e+06	1.589e+07	1,427	2.054e+06	1.421e+07
Monthly Profit	1,390	107,564	541,972	1,391	103,997	528,668
Percent that have Invested	1,102	0.407	0.491	1,098	0.438	0.496
Percent in Services	1,453	0.407	0.491	1,448	0.395	0.489
Percent in Dhaka	1,453	0.380	0.486	1,448	0.363	0.481
Percent in Chittagong	1,453	0.191	0.393	1,448	0.193	0.395
Percent in Rajshahi	1,453	0.142	0.349	1,448	0.148	0.356
Percent that are Sole Proprietorships	1,453	0.818	0.386	1,448	0.829	0.376
Percent that are Partnerships	1,453	0.149	0.356	1,448	0.144	0.351
Percent that Import Directly	1,070	0.0327	0.178	1,066	0.0356	0.185
Number of Firms in the Informality survey	351		n/a	350		n/a

*** p<0.01, ** p<0.05, * p<0.1
All variables come from BCS2, BC3, and Informality surveys and thus are the "Baseline" version of the question.
"Monthly Profit" and "Monthly Revenue" are answers to the question "How much revenue did you make last month?"

Table 2: The effect on registration

VARIABLES	(1) Linear Regression Registered?	(2) Linear Regression Registered?	(3) Linear Regression Registered?	(4) Probit Registered?	(5) Probit Registered?	(6) Propensity Score Matching Registered?
Treated?	-0.00620	-0.00657	-0.0115	-0.00679	-0.00699	-0.00615
	(0.00759)	(0.00776)	(0.00994)	(0.00948)	(0.0123)	(0.00760)
Number of Employees		0.000165**	0.000122	0.000156	0.000149	
		(7.65e-05)	(8.84e-05)	(0.000113)	(0.000154)	
Is it in Dhaka?		0.0184*	0.00627	0.0256	0.00958	
		(0.00991)	(0.0131)	(0.0177)	(0.0141)	
Is it in Chittagong?		-0.00811	-0.0254	-0.00710		
		(0.0125)	(0.0168)	(0.0115)		
Is it in Rajshahi?		-0.00446	-0.0147	-0.00388	-0.0128	
		(0.0123)	(0.0149)	(0.0132)	(0.0129)	
Is it a Sole Proprietorship?		-0.147***	-0.161***	-0.225	-0.360	
		(0.0484)	(0.0515)	(0.326)	(0.400)	
Is it a Partnership?		-0.135***	-0.156***	-0.0253	-0.0302	
		(0.0492)	(0.0526)	(0.0171)	(0.0204)	
Percent of Goods Sold Domestically		0.000858	0.000834			
		(0.000949)	(0.000997)			
Does the Firm Import?			0.0218		0.0317	
			(0.0265)		(0.0546)	
Did it Invest from Oct - Dec '08?			0.0130		0.0171	
			(0.0100)		(0.0150)	
BCS 3	0.0196**	0.0175*	0.0219**	0.0290*	0.0318*	
	(0.00876)	(0.00902)	(0.00990)	(0.0168)	(0.0190)	
Informality	0.00447	0.0125		0.0268		
	(0.00937)	(0.0105)		(0.0258)		
Constant	0.0113	0.0608	0.0853			0.0196***
	(0.00785)	(0.107)	(0.113)			(0.00585)
Observations	1,133	1,124	791	580	323	1,128
R-squared	0.005	0.105	0.132			0.001

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
There are "Year Founded" fixed effects in every column but (1).
The probit results display marginal effects, evaluated at the means of the continuous variables.
The propensity score matching used nearest neighbor matching with replacement.
Columns (3) and (5) uses data from BCS2 and BCS3; the rest use data from BCS2, BCS3 and Informality.

Table 3: The effect on awareness

VARIABLES	(1) Linear Regression Don't Know	(2) Linear Regression Don't Know	(3) Linear Regression Don't Know	(4) Probit Don't Know	(5) Probit Don't Know	(6) Probit Don't Know	(7) Propensity Score Matching Don't Know
Treated?	-0.0806***	-0.0293	-0.0859***	-0.0866***	-0.0318	-0.0914***	-0.0661**
	(0.0293)	(0.0373)	(0.0304)	(0.0317)	(0.0398)	(0.0321)	(0.0298)
Number of Employees		-0.000767**	-0.000671**		-0.00157**	-0.00155**	
		(0.000328)	(0.000298)		(0.000688)	(0.000638)	
Percent of Goods Sold Domestically		0.00116	0.000941		0.00145	0.00158	
		(0.00377)	(0.00373)		(0.00415)	(0.00416)	
Is it in Dhaka?		-0.0746	-0.112***		-0.0806	-0.122***	
		(0.0488)	(0.0387)		(0.0517)	(0.0400)	
Is it in Chittagong?		-0.0133	-0.0424		-0.00970	-0.0453	
		(0.0623)	(0.0485)		(0.0665)	(0.0506)	
Is it in Rajshahi?		-0.0216	-0.0350		-0.0249	-0.0425	
		(0.0557)	(0.0483)		(0.0594)	(0.0501)	
Is it a Sole Proprietorship?		0.316	0.338*		0.369**	0.365**	
		(0.194)	(0.190)		(0.179)	(0.159)	
Is it a Partnership?		0.302	0.306		0.389*	0.392*	
		(0.199)	(0.193)		(0.209)	(0.214)	
Does the Firm Import?		-0.145			-0.174*		
		(0.102)			(0.102)		
Did it Invest from Oct - Dec '08?		-0.0210			-0.0227		
		(0.0379)			(0.0402)		
BCS3	-0.197***	-0.194***	-0.200***	-0.211***	-0.196***	-0.191***	
	(0.0338)	(0.0372)	(0.0351)	(0.0337)	(0.0393)	(0.0355)	
Informality	-0.200***		-0.242***	-0.200***		-0.242***	
	(0.0365)		(0.0410)	(0.0366)		(0.0385)	
Constant	0.602***	0.614	0.668				0.469***
	(0.0303)	(0.648)	(0.641)				(0.0229)
Observations	1,143	801	1,134	1,115	776	1,110	1,138
R-squared	0.041	0.128	0.109				0.004

The dependent variable is equal to one iff the individuals report that they do not register either because
they do not know how or do not know how to online.
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
There are "Year Founded" fixed effects in every column but (1), (4), and (7).
The probit results display marginal effects, evaluated at the means of the continuous variables.
The propensity score matching used nearest neighbor matching with replacement.
Columns (3) and (6) uses data from BCS2 and BCS3; the rest use data from BCS2, BCS3 and Informality.

Table 4: The effect on awareness

VARIABLES	(1) Linear Regression info1	(2) Linear Regression info1	(3) Linear Regression info1	(4) Probit info1	(5) Probit info1	(6) Probit info1	(7) Propensity Score Matching info1
Treated?	0.382***	0.336***	0.397***	0.393***	0.364***	0.432***	0.372***
	(0.0289)	(0.0357)	(0.0296)	(0.0277)	(0.0341)	(0.0289)	(0.0298)
Number of Employees		0.000199	9.21e-05		0.000317	0.000176	
		(0.000292)	(0.000272)		(0.000316)	(0.000340)	
Percent of Goods Sold I		-0.00132	-0.00147		-0.00110	-0.00140	
		(0.00329)	(0.00328)		(0.00373)	(0.00397)	
Is it in Dhaka?		-0.108**	-0.0863**		-0.138***	-0.116***	
		(0.0471)	(0.0379)		(0.0520)	(0.0436)	
Is it in Chittagong?		-0.107*	-0.160***		-0.116**	-0.175***	
		(0.0600)	(0.0472)		(0.0578)	(0.0449)	
Is it in Rajshahi?		0.0592	0.0659		0.0627	0.0789	
		(0.0535)	(0.0469)		(0.0641)	(0.0586)	
Is it a Sole Proprietorship?		0.282	0.327		0.684***	0.743***	
		(0.221)	(0.219)		(0.0788)	(0.0886)	
Is it a Partnership?		0.227	0.330		0.944***	0.943***	
		(0.225)	(0.222)		(0.0249)	(0.0317)	
Does the Firm Import?		-0.00696			-0.0192		
		(0.0961)			(0.109)		
Did it Invest from Oct - Dec '08?		0.0702*			0.0719*		
		(0.0361)			(0.0428)		
BCS3	0.189***	0.213***	0.189***	0.227***	0.240***	0.237***	
	(0.0331)	(0.0354)	(0.0338)	(0.0397)	(0.0398)	(0.0429)	
Informality	0.256***		0.228***	0.309***		0.295***	
	(0.0362)		(0.0405)	(0.0445)		(0.0524)	
Constant	-0.00596	-0.490	-0.579				0.139***
	(0.0296)	(0.583)	(0.582)				(0.0230)
Observations	931	662	924	931	639	899	928
R-squared	0.194	0.272	0.277				0.144

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
There are "Year Founded" fixed effects in every column but (1), (4), and (7).
The probit results display marginal effects, evaluated at the means of the continuous variables.
The propensity score matching used nearest neighbor matching with replacement.
Columns (3) and (6) uses data from BCS2 and BCS3; the rest use data from BCS2, BCS3 and Informality.