December 2018

FUNDED BY

UKaid
from the British people

Entry Regulation and the Formalization of Microenterprises in Developing Countries[i]

PEDL Policy Insight Series[†] | No. 2

Miriam Bruhn and David McKenzie

Policies to Address Lack of Formalization

1. Consumer incentives to demand that firms become more formal
2. Stricter enforcement of existing rules
3. No crackdown on subsistence enterprises, in the absence of other job opportunities
4. Separation of business registration from tax registration

Is there a policy rationale for actively trying to encourage small firms to formalise? In the last two decades, hundreds of regulatory reforms have been implemented in countries across the world with the primary objective of making it easier to formally register a business. In this report we summarise the evidence on the effect of these policy reforms..

We find three key results, which are briefly summarized and discussed in this article.

Firstly, we find that most reforms have not been very successful at increasing the number of formal firms. In particular, the provision of information, alone or coupled with a reduction in the costs of formalization, appears particularly ineffective.
Secondly, we notice that an increased enforcement of existing rules is more effective at boosting formalization rates, as is any demand of formality by consumers and suppliers.
Thirdly, from the firms' perspective, it appears that the decision to remain informal is rational and privately optimal, i.e. the costs of formalisation appear to outweigh the benefits of formalisation for most small, subsistence informal firms.

Thus, policy makers should think carefully about whether to request formality from small-scale, subsistence enterprises, and should focus their efforts on bringing larger and more profitable informal firms into the formal system. The latter ones are those that could help the most, in efforts to widen the tax base. Reducing the costs and complexities of the formalisation process is a necessary but insufficient step in this direction..

COORDINATED BY: CEPR Centre for Economic Policy Research Research Excellence, Policy Relevance

Private Enterprise Development in Low-Income Countries

- Executive Summary -

Making it easier to formally register a business has been one of the most popular areas of business regulatory change over the last two decades, with the World Bank's Doing Business project identifying 558 reforms taking place in 171 economies between 2006 and 2016 (World Bank, 2017).

However, the majority of self-employed individuals and firms with only one or two workers remain informal in many developing countries. As described in this report, studies that investigate the provision of information and lower cost of formalization have found at best modest effects on formalization. The evidence that increased enforcement leads informal firms to register is more compelling. A key issue for policymakers is whether there is a public rationale for attempting to formalize small-scale firms.

The research discussed in this report presents clear evidence that, despite significant efforts to lower the cost and complexity of business registration, most small-scale enterprises in developing countries continue to operate informally. This suggests that these firms typically view the benefits of formalization as smaller than the costs, and that their decision not to formalize is a privately optimal one. There is therefore no clear policy rationale for attempting to bring most of these small-scale firms into the formal sector. This does not imply that there is no cost of inefficient and costly regulations; efforts to simplify regulations will clearly benefit those firms that choose to go through the registration process.

There are several compelling reasons to attempt to bring larger and more profitable informal firms into the formal system. For example, in many developing countries there is a need to widen the tax base, and there are potential benefits from collecting taxes from relatively well-off owners of informal firms. Andrade, Bruhn, and McKenzie (2014) suggest that inspecting informal firms in Brazil that earn an average of USD 1,000 a month in profits would formalize more than enough firms to pay for the costs of such enforcement. Furthermore, these relatively successful informal firms are more likely to be the ones competing with formal firms for customers, so ensuring that they become formal also has benefits in terms of reducing unfair competition that prevents more efficient formal firms from growing. The evidence discussed in this report suggests that reducing the cost and complexity of formalization is a necessary but insufficient step to encouraging such firms to formalize, and that policymakers also need to increase enforcement of rules and investigate innovative approaches to encouraging suppliers and customers to demand formality.

As for very small-scale subsistence enterprises, the evidence suggests that such firms see no benefit from formalizing and would typically contribute very little to taxes if they did formalize. In the absence of other job opportunities for such individuals, it may be optimal for the government to leave them alone rather than closing them down. Another rationale for the government to encourage formalization is in order to obtain basic data on firms in the economy, which can then be used for better targeting of programs. As shown by Campos, Goldstein, and McKenzie (2018), the government can achieve this by separating business registration (for which demand can be high) from tax registration (which most firms many not want to do), and thereby allowing partial formalization in order to benefit from the data that firms provide on their business registration form (such as location and sector).

Governments may also attempt to bring firms into the formal sector for fear the presence of a large number of informal firms may send a message to the public that it is not necessary to obey the law, which may dissuade more profitable informal firms from formalizing, as discussed in the "broken windows" theory of crime (Keizer, Lindenberg, and Steg, 2008). An alternative approach would be to structure the law in a way that does not require firms with income below a certain threshold to register, making them in compliance with the law. However, unless such a threshold is set very high, it is still likely that many firms above the threshold will choose not to register.

I. Introduction

We define informal firms as those that are engaged in legitimate business activities but are not registered for the relevant operating licenses or with the tax department. The majority of businesses in most developing countries are informal, with rates of informality highest for the smallest firms, most commonly those with an owner working alone or hiring one or two paid workers. A key question for policymakers is what, if anything, they should do to address the large number of small-scale informal firms. Before assessing the evidence on policies that have attempted to increase the number of formal firms, we discuss three prominent theories that explain the existence of informal firms, and outline the potential benefits and costs of formalization.

Three theories of formalization

Informality as handcuffs: A commonly cited view is that of de Soto (1989), who argues that informal firms are potentially very productive, but are constrained by costly government regulations, bureaucracy and their inability to secure property rights and to access finance. A key assumption is that informal firms would be fundamentally similar to formal firms, were they not constrained by policy. The implication of this view is that, if the barriers to official status were lowered and capital provided, informal firms would formally register and then take advantage of the benefits of formalization, which would then lead to their expansion and wider economic growth.

While this first theory could be labelled as the "optimistic view", the other two prominent theories take a more skeptical view of informal firms, considering them as relatively unproductive.

Informality as a rational choice: Maloney (2004) argues that the firms that would benefit from formalizing already do formalize, whereas smaller and less productive firms rationally opt out of the formal sector because they perceive little benefit to being formal. Since such firms are constrained by their lower levels of human capital, being in the informal sector is often the optimal decision given their preferences. A related view has been referred to by some as the "optimistic view". This view holds that, while they are informal as a result of a rational decision, informal firms gain a substantial cost advantage over formal firms by avoiding taxes and regulations. They remain small to avoid detection (Ulyssea, 2018). These firms hinder the growth of the economy because their small scale makes them unproductive, but at the same time their cost advantages allow them to take away market share from bigger, more productive, formal firms. The implication of this view is that governments should aim to decrease the number of informal firms by reducing tax evasion and enforcing regulations.

Informality as a stage of development: A related view is the "survival view", which argues that informality is a survival strategy for low-skilled individuals in economies that do not generate enough opportunities for wage employment. These individuals would prefer wage employment but are screened out as a result of their lower productivity, and so are unable to find formal jobs (Fields, 2004). The implication is again that it is not privately optimal for the survival enterprises they create to formalize, so policymakers should only attempt to bring them into the formal sector if there is a compelling public rationale for doing so.

In the upcoming sections, we discuss the empirical evidence from a number of interventions, with the findings shedding light on the relevance of these three views of formalization.

II. Comparing Formal and Informal Firms

Simple comparisons of formal and informal firms reveal that formal firms are more productive and profitable. For example, a series of often-cited studies by the McKinsey Global Institute compare the operations of formal and informal firms in several countries and conclude that informality has a negative impact on productivity. The gap is large enough to account for nearly 50 percent of the overall productivity gap between countries such as Portugal and Turkey on the one hand and the United States on the other (Farrell, 2004). La Porta and Schleifer (2008) also find that formal firms tend to have substantially higher productivity than informal firms.

But does this correlation reflect the true causal effect of formalization on performance, or is it due to some pre-existing differences in the performance of firms that chose to formalize and those that chose not to? Simple comparisons are complicated by the fact that firms actively choose whether or not to be formal. If firms consider all the potential costs and benefits of formalization, some of which are outlined in Table 1, then the more productive firm owners, who expect larger benefits to becoming formal, are more likely to formalize. In contrast, individuals who see less benefit from formalization (such as those whose firms are smaller and less productive) are more likely to choose to stay informal. The presence of this kind of selection, complicates the interpretation of the data. We cannot conclude anything about the effect of formalization on productivity from a simple comparison of firms that chose to formalize and those that do not. In particular, the observed positive correlation between formality and performance will overstate the benefits of formalizing for firm performance, because it conflates any actual causal effect of formalization with a selection effect that reflects that those individuals who chose to formalize have fundamentally higher productivity, irrespective of the direct benefits of formalization.

In order to have a more accurate ("unbiased") measure of the causal effect of formalization on productivity, an ideal experiment would randomly choose to make some informal firms formal and leave an otherwise identical group of firms informal. We could then compare the outcomes for the two groups and infer a causal effect of formalization. This approach, known as a randomized evaluation, has become popular in development economics in recent years, and has been used in a number of studies on informality, many of which we discuss in this report. We also discuss studies using non-experimental methods that attempt to measure the causal effect of an intervention, although these methods rely on stronger assumptions to control for the self-selection of firms into formal or informal status.

Is the lack of formalization simply due to misinformation?

Before discussing the impact of reforms that simplify the business formalization process, a natural first question arises: do firms have incorrect opinions about the cost of formalization? Would an intervention that simply provided them with the correct information increase formalization rates? Overall, although there is evidence that firms are not well informed about the process of formalizing or the costs involved, most studies have found that simply providing information does not lead to a large increase in formalization.

In Sri Lanka, de Mel, McKenzie, and Woodruff (2013) report that only 17 percent of informal firm owners in their study knew the cost of registering and that most believed that the process of formalizing would take more than a month (in practice, it

Tabela 1: Potential benefits and costs of formalization

Benefits of formalization	Costs of Formalization
Ability to "operate out of the shadows": work in permanent, visible locations and advertise openly and widely.	Time taken and cost of registration.
Expansion of customer base by being able to sell to customers that need tax receipts issued.	Increased tax burdens and filing costs.
Improved access to financial sector, e.g. accessing business loans	Increased labour regulations, e.g. formal registration of employees and minimum wages.
Increased access to government benefits, e.g. accessing government contracts.	
Less risk of fines.	
Positive reputation effects.	

took a week or less). Moreover, only 2 percent knew that lower business incomes are not liable for tax. In Bolivia, McKenzie and Sakho (2010) report that only one-third of informal owners knew the location of the tax office, which is where business registration takes place, and only 10 percent had even heard of the commerce registry.

A natural policy response to this lack of knowledge is to provide information to firms on how they can register, and the potential benefits of registration. However, several experiments show that providing information alone results in no increase in formalization. In Brazil, Andrade, Bruhn, and McKenzie (2014) provided an information brochure that was prepared by a state government marketing team to 208 informal firms. They find that the recipient firms were not more likely to register over the following year. In Bangladesh, de Giorgi and Rahman (2013) provided 1,500 informal firms with information and brochures, finding that fewer than 5 percent of them registered, a share not larger than the percentage registering among the control group who were not given any information. In Benin, Benhassine, McKenzie, Pouliquen, and Santini (2018) also use a field experiment and find that few firms registered when just given information about the introduction of a new simplified business registration scheme.

Two randomized experiments have investigated the impact of lowering the cost of formalization in addition to providing information. In Sri Lanka, de Mel, McKenzie, and Woodruff (2013) provided information and offered to reimburse the full cost of registering for taxes to 104 firms, and found that only one firm accepted the offer and formalized. In Brazil, Andrade, Bruhn, and McKenzie (2014) provided information and to 225 informal firms. The government agreed to waive all registration costs as well as sanitary and inspection taxes, and the researchers agreed to pay for accountants to prepare the required forms. Only one firm accepted the offer. This evidence suggests that the cost of registering has very little impact on the registration of existing firms. One reason for this may be that, as well as the initial cost, registration increases the expected ongoing costs, increasing taxes and labour costs directly and adding costs of accountants and other fees that are required for complying with tax and labour regulations.

In many countries, formalization also requires registration with other government agencies, such as the municipal license agency. In Peru, Alcázar, Andrade, and Jaramillo (2010) investigate the impact of a reform that reduced the time to obtain a municipal license from 160 days to 2 days. The authors use a randomized experiment to offer 300 informal firms a subsidy of between 27 and 35 percent of the cost of a municipal license, and find that it led to approximately 10 to 12 percent of informal firms obtaining a license. In Malawi, Campos, Goldstein, and McKenzie (2018) separately investigate the effect of business and tax registration to test whether governments can bring firms into at least part of the formal system. They conduct a randomized experiment with 3,000 informal firms and three different treatments: (i) 745 firms were offered assistance obtaining a business registration certificate at no cost; (ii) 293 firms were offered assistance in obtaining both the business registration certificate and a tax payer identification number; and (iii) 1,207 firms received assistance in obtaining a business registration certificate plus a bank information session. Business registration increased by a large amount for all three treatments (with 75% of firms registering their

business), with no significant effect on tax registration in any of the treatments. Assisting firms with information on bank accounts led to a 39 percentage point increase in bank account usage, which in turn led to a 15 percent growth in profits.

Overall, the results discussed in this section suggest that, while there is evidence that many firms are not well informed about the process of formalizing, information alone does not lead to a large effect on formalization rates. Assisting firms with the registration process can lead to a greater effect, for example by separating the business and tax registration process, and by assisting firms in benefiting from their new status.

III. Policy Options

A number of studies from Latin America have examined the impact of reducing the costs of registering. For example, governments have implemented a "one-stop shop service point", which eliminated the need to visit several different government offices to complete the formalization process. The overall finding from these studies is that a large reduction in the cost and time taken to register a firm has only led to a modest increase in the number of formal firms.

For example, a reform in Mexico reduced the number of days needed to start a business from 30.1 to 1.4. Bruhn (2011) uses data on individuals' employment status from the Mexican Labor Market Survey to show that this reform increased the number of registered businesses owners by 5 percent. Kaplan, Piedra and Seira (2011) use administrative data to analyze the same reform and find that it increased the number of new firm registrations with the Mexican Social Security institute by 5 percent but also find evidence that this was a one-off gain in registrations. Cárdenas and Rozo (2007) investigate a reform by the Colombian government that reduced the time required to register a business from 55 to less than 9 days and lowered the registration fees by 30 percent, and find that it led to a 5 percent increase in business registrations.

Entry reforms appear to have an even smaller effect on business registrations in less populous and more remote areas. Bruhn and McKenzie (2013) analyze the impact of a reform in Brazil that aimed to extend the benefits of a one-stop shop to smaller municipalities, and find that it actually led to a reduction in the number of firms registering during the first two months of implementation (perhaps due to officials learning to use the new system), with no subsequent increase.

Does business entry reform lead to the formalization of informal firms, or entry of new firms?

Most studies cannot disentangle whether the increase in registrations is due to informal firms registering or new firms being created; Bruhn (2011) is an exception: she finds that the increase in registered businesses was due to wage earners opening new businesses. A follow-up study by Bruhn (2013) investigates the impact of the business registration reform in Mexico on informal business owners in more detail, with a view to exploring the heterogeneity of business owners and dividing them into two groups: one group that has personal characteristics similar to that of formal business owners, and another that has characteristics similar to that of wage earners. This reflects the idea that some people may be looking for a wage job instead of aiming to continue or grow their business. She then examines the impact of the reform for each of the two groups, and finds that the type that look more like wage earners are less likely to register their businesses due to the reform, but are more likely to become wage workers, because the reform itself created jobs. This approach is similar to that of de Mel, McKenzie, and Woodruff (2010), who categorize the self-employed in Sri Lanka using statistical methods designed for species classification in biology, and find that between a quarter and a third of the self-employed appear to have characteristics that give them the potential to be owners of somewhat larger firms, whereas the remaining two-thirds to three-quarters looked more like wage workers.

Mullainathan and Schnabl (2010) report on a municipal licensing reform in Peru that led to an increase in firm registrations from 1,758 a year before the reform to 8,517 a year after the reform. Most of the registrations appeared to come from informal firms. However, the majority of newly-issued

licenses had to be renewed every year and the number of registrations dropped to 3,500 in the second year after the reform, suggesting that the increase in formalization was temporary. Temporary effects were also observed in Colombia, where Galiani, Meléndezc, and Navajas (2017) investigate the impact of elimination of the initial fixed costs of business registration on the decisions of informal firms to register. They find that randomly inviting firms to have a meeting with an agent from the chamber of commerce led to a 5.5 percentage point increase in formalization rates, but that a year later the effects had disappeared. In Benin, Benhassine, McKenzie, Pouliquen, and Santini (2018) conduct an experiment with 3,600 informal businesses to investigate the impact of a new simplified registration system offered to small businesses; they also investigate the effect of providing information about the new regime in addition to offering business training and support in opening a business bank account, as well as tax mediation services. They find a significant increase in formalization, with the effect increasing in the number of supplementary services offered (with a 16 percentage point increase for the group that were offered the full package of services).

Sticks, not carrots? The effect of greater enforcement on formalization

If making business registration easier has a limited effect on formalization rates, what have we learned about the effect of stricter enforcement of existing regulations? Overall, the evidence suggests that stricter enforcement is much more effective in increasing formality.

Alcazar, Andrade, and Jaramillo (2010) use a randomized experiment where 577 firms were visited by municipal inspection officers and find that - although it is very difficult to locate some informal firms - there is a large potential impact on formalization: approximately a quarter of firms that received an inspection as a result of their intervention registered with the municipality. In Brazil, Andrade, Bruhn, and McKenzie (2014) also randomly assigned municipal inspectors to firms. They find that the inspectors are unable to find many firms they are assigned to visit, but that the impact of a realized visit by an inspector visit was a 21 to 27 percentage point increase in registration.

In practice, even after firms formally register, they face a number of other regulations and can choose the extent to which they comply with these regulations. For example, Ulyssea (2018) defines two margins of informality that a firm can exploit: (i) the "extensive margin" (not registering the business); and (ii) a subtler "intensive margin" (e.g. hiring workers "off the books"). Formally registered firms may be partly informal with regard to their compliance with labour and tax regulations, and several studies examine the role of enforcement in increasing formality along these dimensions.

Pomeranz (2015) examines the effect of increasing auditing in the VAT system in Chile. She finds that a letter sent by the tax authority to generate a perceived increase in audit probability to randomly selected firms led to an increase of 12 percent in median declared income, with this effect concentrated in firms that sell to final consumers (because the letter is likely to have less of an effect on firms that already faced enforcement through the VAT paper trail). The effect was also larger for smaller firms, which is consistent with the idea that larger firms are less likely to evade taxes.

A complementary approach is to establish incentives for customers to demand that firms become formal. Several countries have implemented a system in which tax receipts count as lottery tickets, creating an incentive for customers to ask for receipts. This system has been implemented in Taiwan, Korea, China, Brazil, and Puerto Rico. Wan (2010) finds that the introduction of this system in China increased sales tax revenue by 17 percent in districts that implemented the reform. Naritomi (2013) finds that the effect on tax revenue in Brazil was an increase of 23 percent.

Almeida and Carneiro (2012) study the impact of greater enforcement of labour regulations in Brazil and find that an increase in the enforcement of mandated benefits in the formal sector led to a reduction in formal wages and an increase in formal sector employment. However, since they have data on workers and not firms, they are not able to determine how much of this impact comes from firms from hiring new workers and how much comes from firms registering previously-informal workers. Kumler, Verhoogen, and Frías (2013) examine the dimension of labour informality in which firms re-

gister workers but under-report the wages they pay them, in order to reduce their payroll tax burden. They find that a social security reform that gave workers incentives to monitor what firms reported led to less evasion among firms reporting the wages of affected workers.

Does formalization cause firms to grow?

In the previous sections, we considered the extent to which business regulations appear to be barriers to firms becoming formal and whether efforts to make it easier for firms to formalize, or more difficult for firms to remain informal, have succeeded in bringing small-scale enterprises into the formal sector. In this section, we examine the extent to which being formal benefits these types of firms. As illustrated in Table 1, the potential benefits of formalization include "operating out of the shadows", which allows firms to market themselves widely without fear of attracting the attention of the law. As a result, one of the possible channels through which formalizing may help firms is by allowing them to expand their customer base. In Bolivia, McKenzie and Sakho (2010) find that firms that become formal as a result of being located slightly closer to the tax office do issue more tax receipts and have greater sales. In Brazil, Fajnzylber, Maloney, and Montes-Rojas (2011) find that firms that opened just after the introduction of the program that simplified business registration were more likely to operate in a permanent location, although this finding could reflect a change in the types of individuals that decide to open firms after the reform rather than a causal impact of formalizing. In Sri Lanka, de Mel, McKenzie and Woodruff (2013) find that firms that formalize are 26 percentage points more likely to advertise.

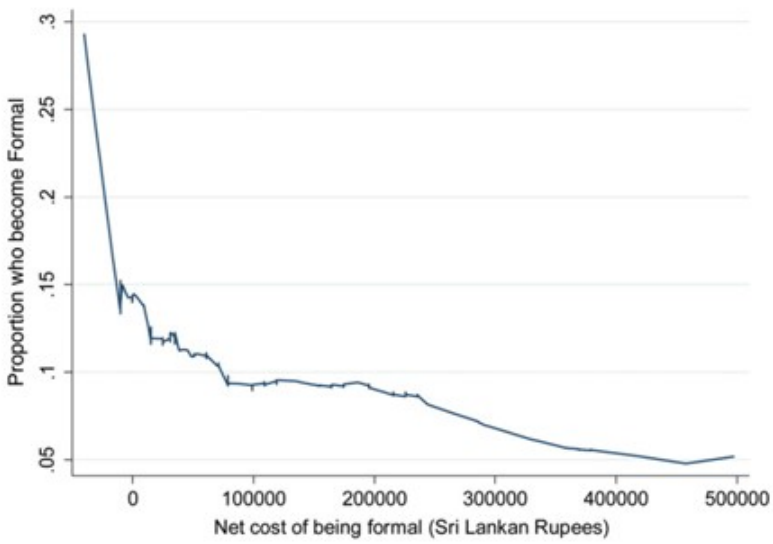
Formalization is often hypothesized to benefit firms by improving access to financial services and to government benefits. However, the literature has found mixed evidence for this. In Sri Lanka, de Mel, McKenzie and Woodruff (2013) find that firms that formalize are not more likely to obtain a business bank account or business loan, make sales to the government, or participate in a government program. In Bolivia, McKenzie and Sakho (2010) find no impact on the likelihood of a bank loan or of sales to the government. One possible explanation for this is that informal firms for whom registration was the only barrier preventing them from obtaining credit may have already chosen to become formal, with a similar potential explanation for government contracting (which is unlikely for small firms in any case). In Malawi, Campos, Goldstein, and McKenzie (2018) find that combining assistance in obtaining a business registration certificate with an information session with a private bank has much larger effects. Randomly selected firms assigned both these treatment, which culminated in the opportunity to open a business bank account, experienced large increases in both formality and use of banking services: the majority of the firms (over 75%) formally registered their business, and a large share (43 percent, compared with only 4 percent in the control group) also opened a business account. This combination, in turn, helped firms grow their sales by 20 percent and profits by 15 percent (USD 27 per month). A key point of these results is that the benefits of formalization may not come automatically - firms may need additional assistance in realizing the benefits from their new formal status.

Consistent with the view that most firms rationally choose whether to formalize by comparing the expected benefits to the costs, many studies have found that informal firms that were induced to become formal through subsidized costs have experienced little benefit from doing so, on average. Alcazar, Andrade, and Jaramillo (2010) find a significant impact of obtaining a municipal license on firm profits and revenue in Peru. McKenzie and Sakho (2010) find that Bolivian firms that would formalize if they were slightly closer to the tax registration office would appear to increase profits by doing so, but the average informal firm wold not. In Sri Lanka, de Mel, McKenzie and Woodruff (2013) find a significant increase in average profitability, but they show that this average is driven by a handful of firms that grew substantially after formalization, whereas most firms showed no improvement. In Benin, Benhassine, McKenzie, Pouliquen, and Santini (2018) find no significant impact of formalizing on any measures of business performance: sales, profits, or number of employees. The authors calculate that the additional tax revenue the government would collect from these firms over their lifetime is unlikely to cover the cost of inducing them to formalize.

IV. Conclusions

As described in this brief, studies that investigate the provision of information and a lower cost of formalization have found at best modest effects on formalization rates. This finding provides strong evidence against the "handcuffs" view of de Soto (1989), suggesting instead that firms rationally decide that the benefits of formalization do not exceed the costs. De Mel, McKenzie, and Woodruff (2013) provide further convincing evidence that firms will only become formal when the benefits to doing so increase. Their experiment offered informal firms different monetary incentives to become formal, ranging from just enough to cover the cost of tax registration to an amount (LKR 40,000, or about USD 350) equivalent to approximately two months' profit for the median firm. They find that although no additional firms registered when only the cost of registering was covered, 20 percent registered when offered LKR 10,000 and 47 percent registered when offered LKR 40,000. By combining these incentives to register with the initial registration costs and the discounted value of future tax payments facing these firms, the authors show that the proportion of firms that were willing to become formal dropped quickly as the net cost of formality increased, as illustrated in the steep downward demand curve in Figure 1.

Figure 1. The Demand for Formality in Sri Lankan Firms as a Function of the Net Cost of Formalizing



Source: Based on de Mel et al. (2013), Figure 3.

The authors calculate that fewer than 15 percent of informal firms seem to view the net benefits of being formal as greater than zero. Interestingly, many of the firms that did not formalize when offered the maximum amount cited other barriers, such as land titling issues. Studies in other developing country contexts have found that the price of formal land titles is often prohibitive, and that even if land titling costs are subsidized there are important challenges in both the delivery and enforcement of these rights

(Ali, Collin, Deininger, Dercon, Sandefur, and Zeitlin, 2016).

Reflecting on the different theories of informality, Ulyssea (2018) develops a unified theoretical model that encompasses the three main views of informality, by explicitly modelling the extensive and intensive margin of informality. In contrast to the majority of the existing literature, which only focuses on the extensive margin, considering the intensive margin allows one to break the direct association between firm and worker informality. Empirically, Ulyssea shows that the intensive margin accounts for a large share of total informal employment. His unified theoretical framework also reveals that the competing views of informality are not actually competing, but rather complementary to one another. For any given institutional framework, firms will choose whether and how much to comply given their own circumstances. Given heterogeneity of firms, all three views can be relevant at the same time. Estimating his model with data from Brazil allows him to infer the proportion of firms that corresponds to each theoretical view. The results show that the "handcuff view" corresponds to only about 9 percent of the informal firms in the data, while the "parasite view" corresponds to approximately 42 percent and the "survival view" the remaining 49 percent. The model predicts that only a very small proportion of informal firms are constrained by entry costs, and that reducing these formalization costs would have limited effects on informality, which is consistent with the evidence from the studies described in this report. The modelling approach offers the potential for building upon the existing research that analyses private costs of formalization to individual firms, by investigating the economy-wide effects and questions such as the often-made claim that informality leads to inefficient resource allocation in the wider economy, since informal firms who don't pay taxes can compete away customers from more efficient tax-paying formal firms.

POLICY RECOMMENDATIONS

1. Policies should not focus exclusively on improving information about the costs, benefits and processes of formalization. Moreover, coupling this approach with a reduction of the costs of registration has been shown not to be a successful strategy.

2. Governments should aim to give customers incentives to demand that firms become (more) formal. In addition, a stricter enforcement of existing rules tends to be effective at increasing formality.

3. Small-scale, subsistence enterprises see no benefits in formalization, and would contribute very little to taxes if they did formalize. Thus, policymakers could find optimal to leave them alone rather than closing them down, particularly in the absence of other job opportunities for these entrepreneurs. At the same time, a separation of business registration from tax registration may give governments the benefits of these additional data .

References

Alcazar, L., Andrade, R., & Jaramillo, M. (2010). "Panel/tracer study on the impact of business facilitation processes on enterprises and identification of priorities for future business enabling environment projects in Lima, Peru-Report 5: impact evaluation after the third round." Report to the International Finance Corporation, Mimeo.

Almeida, R., & Carneiro, P. (2012). "Enforcement of labor regulation and informality". *American Economic Journal: Applied Economics*, 4(3), 64-89.

Andrade, G. H., Bruhn, M., & McKenzie, D. (2014). "A helping hand or the long arm of the law? Experimental evidence on what governments can do to formalize firms." *The World Bank Economic Review*, 30(1), 24-54.

Benhassine, N., McKenzie, D., Pouliquen, V., & Santini, M. (2018). "Does inducing informal firms to formalize make sense? Experimental evidence from Benin". *Journal of Public Economics*, 157, 1-14.

Bruhn, M. (2011). "License to sell: the effect of business registration reform on entrepreneurial activity in Mexico." *Review of Economics and Statistics* 93 (1): 382–6.

Bruhn, M. (2013). "A tale of two species: Revisiting the effect of registration reform on informal business owners in Mexico." *Journal of Development Economics*, 103, 275-283.

Bruhn, M., & McKenzie, D. (2013). "Using administrative data to evaluate municipal reforms: an evaluation of the impact of Minas Fácil Expresso." *Journal of Development Effectiveness*, 5(3), 319-338.

Bruhn, M., & McKenzie, D. (2014). "Entry regulation and the formalization of microenterprises in developing countries." *The World Bank Research Observer*, 29(2), 186-201.

Cárdenas, M., & Rozo, S. (2007). "La informalidad empresarial y sus consecuencias:¿ Son los CAE una solución?"

Campos, F., Goldstein, M., & McKenzie, D. (2018). "How Should the Government Bring Small Firms into the Formal System? Experimental Evidence from Malawi." The World Bank.

De Giorgi, G., & Rahman, A. (2013). "SME's Registration: Evidence from an RCT in Bangladesh." *Economics Letters*, 120(3), 573-578.

De Mel, S., D. McKenzie, & C. Woodruff. (2010). "Who are the Microenterprise Owners?: Evidence from Sri Lanka on Tokman v. de Soto. In J. Lerner, and A. Schoar, eds., International Differences in Entrepreneurship." Boston, MA: National Bureau of Economic Research.

De Mel, S., McKenzie, D., & C. Woodruff, (2013). "The demand for, and consequences of, formalization among informal firms in Sri Lanka." *American Economic Journal: Applied Economics*, 5(2), 122-50.

De Soto, H. (1989). "The Other Path" (p. 17133). New York: Harper Row.

Fajnzylber, P., Maloney, W. F., & Montes-Rojas, G. V. (2011). "Does formality improve micro-firm performance? Evidence from the Brazilian SIMPLES program." *Journal of Development Economics*, 94(2), 262-276.

Farrell, D. (2004). "The hidden dangers of the informal economy". *McKinsey Quarterly*, (3), 26-37.

Fields, G. (2004). "A guide to multisector labor market models". Working paper, Cornell University, School of Industrial and Labor Relations, Ithaca, NY.

Galiani, S., Meléndez, M., & Ahumada, C. N. (2017). "On the effect of the costs of operating formally: New experimental evidence." *Labour Economics*, 45, 143-157.

Gordon, R., Li, W. (2009). "Tax structures in developing countries: Many puzzles and a possible explanation." *Journal of Public Economics*, 93(7-8), 855-866.

Jaramillo, M. (2009). "Is there demand for formality among informal firms? Evidence from microfirms in downtown Lima." Working paper, German Development Institute, Bonn, Germany.

Kaplan, D. S., E. Piedra, and E. Seira. (2011). "Entry regulation and business start-ups: Evidence from Mexico." *Journal of Public Economics* 95 (11-12): 1501–15.

Keizer, K., Lindenberg, S., & Steg, L. (2008). "The spreading of disorder." *Science*, 322(5908), 1681-1685.

Kumler, T., Verhoogen, E., & Frías, J. A. (2013). "Enlisting employees in improving payroll-tax compliance: Evidence from Mexico" Working paper No. w19385). National Bureau of Economic Research.

La Porta, R., and A. Shleifer. (2008). "The unofficial economy and economic development." *Brookings Papers on Economic Activity* 47 (1): 123–35.

Levy, S. (2010). "Good intentions, bad outcomes: Social policy, informality, and economic growth in Mexico." Brookings Institution Press.

Maloney, W. F. (2004). "Informality revisited." *World development*, 32(7), 1159-1178.

McKenzie, D. (2011). "How can we learn whether firm policies are working in Africa? Challenges (and solutions?) for experiments and structural models." *Journal of African Economies*, 20(4), 600-625.

McKenzie, D., and Y. S. Sakho. (2010). "Does it pay firms to register for taxes? The impact of formality on firm profitability." *Journal of Development Economics* 91 (1): 15 –24.

Monteiro, J. C., & Assunção, J. J. (2012). "Coming out of the shadows? Estimating the impact of bureaucracy simplification and tax cut on formality in Brazilian microenterprises." *Journal of Development Economics*, 99(1), 105-115.

Mullainathan, S., & Schnabl, P. (2010). "Does less market entry regulation generate more entrepreneurs? Evidence from a regulatory reform in Peru." in *International differences in entrepreneurship* (pp. 159-177). University of Chicago Press.

Naritomi, J. (2013). "Consumers as tax auditors." Job market paper, Harvard University.

Pomeranz, D. (2015). "No taxation without information: Deterrence and self-enforcement in the value added tax." *American Economic Review*, 105(8), 2539-69.

Ulyssea, G. (2018). "Firms, informality, and development: Theory and evidence from Brazil." *American Economic Review*, 108(8), 2015-47.

Wan, J. (2010). "The incentive to declare taxes and tax revenue: the lottery receipt experiment in China." *Review of Development Economics*, 14(3), 611-624.

Waseem, M. (2018). "Taxes, informality and income shifting: Evidence from a recent Pakistani tax reform." *Journal of Public Economics*, 157, 41-77.

World Bank (2017): Doing Business website - count of reforms (http://www.doingbusiness.org/Reforms/Reforms-Count)

† The **PEDL Policy Insight Series** (PPI) summarises the lessons of research on topics related to developing robust private sectors in low-income countries and fragile states.

Each Insight piece is linked to a more extensive review which is available online.

[i] This summary draws primarily from "Entry regulation and the formalization of micro-enterprises in developing countries", by Miriam Bruhn and David McKenzie, published in the World Bank Research Observer in 2014. We thank Muhammad Meki for his work drafting the summary and adding additional, more recent, literature.