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The costs and benefits of formalization for firms

A mixed-methods study on Mozambique

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Abstract: This paper is the first to use a panel dataset from the African continent to investigate the relationship between formalization and firm outcomes. Instead of applying a binary formality indicator, it constructs a conceptual framework that regards informality as a continuum consisting of four degrees. The quantitative data includes 516 manufacturing enterprises which are analysed through a matched double difference approach. Moreover, the study explores participant observation as well as semi-structured interviews with government officials, experts, and entrepreneurs to explain the quantitative results and to examine additional effects of formalization. It suggests that the most informal firms do not benefit from formalization due to their underlying conditions. Other, more formal enterprises benefit but there is scope for increasing the benefits and decreasing the costs of formalization. Further, an improvement of the costs and benefits is not enough: better institutions are needed.

Keywords: informality, formalization, firms, manufacturing, Mozambique, mixed-methods
JEL classification: D21, L60, O12, O17

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1 Introduction

Unregistered entrepreneurs in low-income countries are often described as unruly citizens, who represent unfair competition to the formal sector (Farrell 2004; Kanbur 2012). Moreover, a high informality rate is said to imply lost tax revenue for the state (Besley and Persson 2013). With the aim to solve these problems, the formalization of the informal sector is a prominent goal of governments in the Global South. This idea is encouraged by donor agencies like the ILO and World Bank, who argue that enterprises in high-income countries are thriving due to a well-functioning property rights system. Accordingly, if informal firms in developing nations would formalize, they would be able to make use of property rights and become prosperous enterprises (Ahlers et al. 2013). Mozambique is no exception to this trend as one of its national objectives is the formalization of the informal sector (Davies n.d.).

However, scientific evidence on the outcomes of formalization for firms themselves is not fully clear. Studies using panel data find that formalization mainly benefits firms (Rand and Torm 2012; Sharma 2014), whereas randomized controlled trials and qualitative research conclude that the associated costs outweigh the benefits (Ahlers et al. 2013; Benhassine et al. 2016; de Mel et al. 2013). Since there neither exists sufficient knowledge nor thorough research on the topic for Mozambique, the present mixed-methods study is the first to use a panel dataset from Africa to examine the costs and benefits of formalization for firms. The dataset consists of 516 manufacturing enterprises and two survey rounds (IIM 2012, 2017). In addition, this paper draws from participant observation as well as 33 qualitative interviews with entrepreneurs, government officials, and thematic experts.

Contrary to most quantitative studies which use a binary informality indicator, I update a conceptual framework that was originally developed by Krause et al. (2010) and that consists of four (in)formality degrees. Informal firms have been found to be highly diverse so that an understanding of informality as a continuum is more accurate in capturing firm heterogeneity than a dichotomous variable (Guha-Khasnobis et al. 2006). This continuum ranges from 'complete lack of integration with formal institutions to full compliance with all' (Perry et al. 2007: 31), including a gray area in which enterprises only abide partly by regulations. Many firm operators do not register for taxes at the national level but sign up with local government agencies, whereas others do pay taxes but no social security for their employees (De Castro et al. 2014). Thus, it is interesting to examine the costs and benefits of registration inherent in different (in)formality levels to learn more about the firm owners' decision to only be semi-formal. To be precise, the framework consists of four (in)formality degrees: (i) a *fully informal firm (1)* is unregistered and does not hold any legal document; (ii) a *license (in)formal firm (2)* possesses an operational license from a *local* government agency; (iii) a *tax (in)formal firm (3)* has a license and pays taxes to the *national* authorities; and (iv) a *fully formal firm (4)* has a license, pays taxes, and social security (Krause et al. 2010).

A matched double difference approach examines the association between firms that changed their (in)formality degree in 2012–17 and subsequent outcomes. Due to non-response, it is not possible to look at overall firm performance and instead, I investigate the relationship between formalization and seven firm-level intermediate outcomes. Moreover, qualitative methods explain some of the quantitative results and give insight into additional consequences of formalization that the quantitative data cannot reveal. To be precise, this study outlines the experience that a shoemaker and I had when formalizing his business from full informality (1) to license (in)formality (2), and this reveals the outcomes of the *initial* phase of formalization compared to the quantitative focus on *mid-term* effects. Moreover, I analyse what entrepreneurs themselves

regard as the costs and benefits of formalization because they will only formalize and benefit if they themselves perceive the advantages of doing so (Krause et al. 2010).

The findings suggest that the costs of formalization are high and the benefits few. However, their respective extent depends on each (in)formality degree. Firms that formalized to (4) are significantly more likely to issue formal contracts to their employees, which might stabilize the firm's long-term situation, and appear to be more likely to sell to formal clients. However, they are not more likely to invest, maintain formal accounts or access credit. They perceive high operational costs and complain about being inspected more regularly than firms of lower (in)formality degrees and these inspections involve regular bribes. Enterprises that are tax (in)formal (3) or fully formal (4) benefit from their status but are subject to high financial costs. Moreover, firms in degrees (3) and (4) hold certain characteristics such as high start-up capital, which enabled them to formalize in the first place, but the quantitative analysis cannot control for these characteristics. More informal firms do not have these characteristics, implying that only specific types of enterprises benefit from formalization, as has also been found by previous studies (Benhassine et al. 2016; Demenet et al. 2016). Tax (in)formal enterprises face lower labour costs than fully formal firms because they pay salaries below the minimum wage and no social security contributions. This allows them to save the costs of full formality and makes them more flexible. However, they are generally smaller and less visible in public than fully formal enterprises, which suggest that there exists a certain size and visibility threshold after which firms have to become fully formal. License (in)formal (2) firms are highly diverse and some of them might benefit from formalization but they face high obstacles that are similar to those for fully informal firms. Fully informal firms (1) are unlikely to benefit from formalization due to a combination of irregular cash flow, and lack of human and social capital that renders formalization expensive and challenging.

Since the majority of enterprises in Mozambique are fully informal or license (in)formal (Krause and Kaufmann 2011) and will not benefit from formalization under the current circumstances, the goal of formalizing the informal economy is unrealistic. It would be advisable if the Government of Mozambique (GoM) would support the most informal firms with alternative solutions in order to reduce poverty instead of trying to convince them to formalize, and would help more successful firms by increasing the benefits of formalization. However, this is not enough: dissemination of information would be helpful for all enterprises, and before streamlining the current regulations even further, thorough enforcement of existing laws and improvement of the state's institutions would be useful.

The paper is structured as follows. Section 2 outlines the main theoretical and empirical findings on firm informality and formalization. Section 3 establishes a conceptual framework of informality. Section 4 describes the methodology. Section 5 and 6 present the results, and Section 7 concludes.

2 Literature review

This paper is based on two debates. The first one discusses how to define informality[1] and the second tries to explain the existence of informality. In terms of the first debate, it is essential to acknowledge that there does not exist a universal definition of informality. Nevertheless, most studies use a binary informality indicator—a firm is formal when it pays taxes and informal when it does not do so, for example (Guha-Khasnobis et al. 2006; Rand and Torm 2012). This dichotomous way of thinking has been criticized for not being accurate enough in capturing firm

[1] A historical overview of informality in Mozambique can be obtained from the author upon request.

heterogeneity and for viewing informality in a negative light, as something that is unstructured and chaotic, although this is not necessarily the case. Alternatively, scholars suggest to regard informality in terms of a continuum between relatively high and relatively low compliance with official regulations, including a gray zone in between where firms only interact partly with state institutions (Guha-Khasnobis et al. 2006; Perry et al. 2007).

Compared to the number of studies that examine firm informality, very few scholars have used several informality degrees (e.g. Benjamin and Mbaye 2014; Williams and Shahid 2016). De Castro et al. (2014) show that the national government of the Dominican Republic does not deliver any benefits to small firms, who consequently decide not to register with this level. Instead, local agencies are more relevant and most firms sign up with them. Only when businesses grow and become more visible in public, they decide to register with the national government. Similarly, Nelson and De Bruijn (2005) illustrate that firms in Tanzania rationally chose at what government level(s) to register.

Krause et al. (2010) developed an informality framework for Mozambique that consists of four levels. Complete formality implies that a firm has an operational license, is registered with the tax authority and with the National Institute for Social Security (INSS) (A+B+C). Firms that hold only a license and pay taxes (A+B) or firms that just have a license (A) are less formal (or more informal). A firm that does not fall into any of these criteria is fully informal (ibid: 5).

Related to the second debate which tries to explain why informality exists, the Peruvian economist Hernando de Soto (1989) regarded informal firms as excluded from joining the state's regulatory framework due to its complexity. Accordingly, informal firms would formalize and become more productive if only red tape and excessive regulations were abolished (Perry et al. 2007). Embracing this exclusion view, the World Bank's Doing Business reports assist governments around the world with the simplification of regulations with one of the ultimate aims being the formalization of the informal economy. This goal has long been part of Mozambique's national objectives and involved various reforms such as the establishment of a one-stop shop (BAÚ) and the adoption of both a simplified licensing and tax regime (GoM 2012, 2009, 2007). These led to a reduction of bureaucracy required to start-up a company from 168 days and 15 procedures in 2004 to 19 days and ten procedures in 2018 (World Bank 2018).

However, despite easier regulations, most informal enterprises in the Global South have not formalized. Therefore, several researchers tried to find out what else needs to be done in order to induce enterprises to formalize and, more importantly, started to measure the resulting effects of formalization on the firms. Instead of assuming that firms are excluded from the formal system *per se*, they argued that entrepreneurs make rational cost-benefit analyses and *exit* the state's regulatory framework when formality is regarded as being too expensive (Maloney 2004). On the one hand, becoming formal implies costs such as taxes, a higher bureaucratic burden, bribe payments and compliance with labour legislation. On the other hand, formalization may lead to a better access to formal markets, the judicial system and public services. Thus, in the firm's careful consideration whether to register, the state's regulatory framework, its enforcement capabilities, and service provision are critical (Benjamin and Mbaye 2012). Further, if the initial costs in terms of fees and time required to register are too high, some firms will not formalize, even if it is profitable to do so (McKenzie and Sakho 2010).

One stream of studies that embraces this exit perspective consists of randomized controlled trials by the World Bank's Development Research Group (e.g. Benhassine et al. 2016; Campos et al. 2015; de Mel et al. 2013). First, they induce firms to formalize by offering three different incentive packages, or purported benefits of formality, to three treatment groups in order to see how many firms become formal depending on the offered benefits. Second, they investigate the consequences

for those firms that formalized. In Benin, Benhassine et al. (2016) obtain a formalization rate of up to 27 per cent when offering additional services besides free registration. However, it is mostly firms that are similar to formal enterprises that formalize. Moreover, enterprises that formalized only benefit from a few advantages such as business training and taxes that are lower than usual corporate income taxes, but do not make use of business bank accounts, do not gain more customers, nor have higher profits. For Malawi, Campos et al. (2015) show that only firms that receive a bank information session benefit from financial practices and access to insurance after formalization but they are not more likely to access credit. Overall, both studies conclude that formalization does not automatically benefit firms neither in terms of intermediate outcomes nor regarding firm performance (de Mel at al. 2013), and that the costs of formalization are likely to outweigh its benefits.

On the other hand, there exists a number of studies that use panel data to examine the effects on firms that formalized themselves, independently of any intervention, and these obtain more optimistic results. Rand and Torm (2012) identify that tax registration not only benefits Vietnamese firms in terms of profits, which are 27 per cent higher for formalized than for informal firms, but also by more investments and less casual labour. Although formalization involves taxes and possible bribes, they conclude that the benefits are likely to outweigh the costs of formalization. However, one shortcoming is that they do not mention the amount of taxes and bribes nor other potential costs involved in firm formalization. Similarly, Demenet et al. (2016) find that Vietnamese enterprises that formalize gain an annual value added of 20 per cent. This is possible through the channels of improved access to equipment, firm growth in terms of employees and operation under higher competition. However, the smallest firms do not benefit. For India, Sharma (2014) discovers gains in sales and value added per employee as a result of voluntary registration. However, tax payments are not included in this registration type so that the relatively low costs of formality may be the reason why firms benefit.

In sum, the consequences of formalization are ambiguous, formalization may be irrelevant or only partly relevant for some enterprises and may depend on the scholar's methodology or the country's context. Due to this insufficient knowledge and because formalization is a national goal in Mozambique, it is essential to understand the impact of formalization in this particular country.

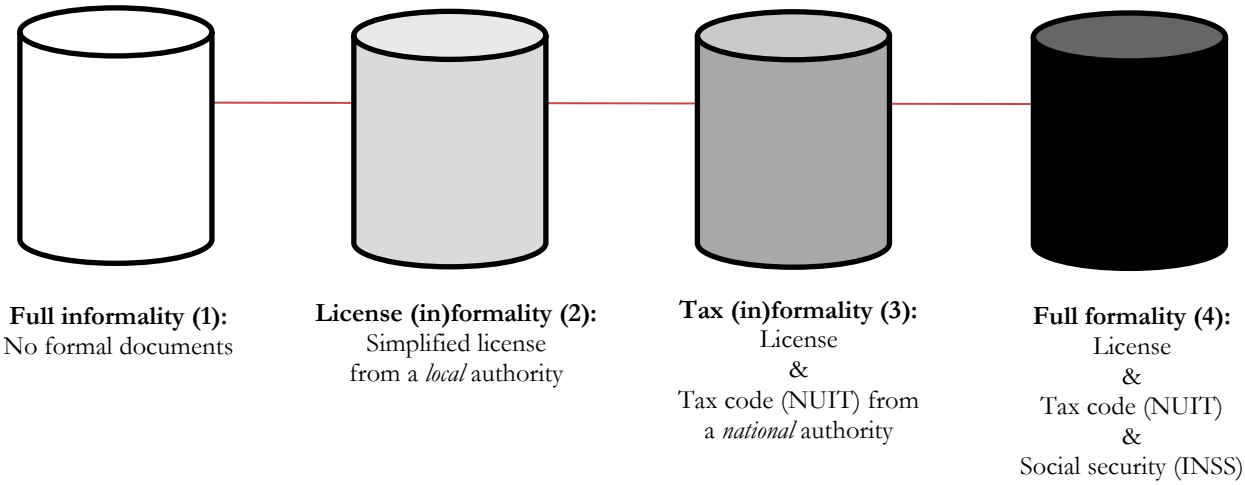
3 Conceptual framework

This study employs the scholarly suggestion to regard firm (in)formality as a continuum instead of a binary variable. Krause et al. (2010) have developed an (in)formality framework for the Mozambican context, which I use and update to the current legal situation of firms. Figure 1 illustrates the framework that consists of four (in)formality degrees, each of which corresponds to a type of business registration that includes a different package of legal obligations (Nelson and De Bruijn 2005). The higher a firm's (in)formality degree, the more regulations a firm is complying with.

3.1 Full informality

A firm is classified as fully informal (1) when it does not comply with any legal regulation. This implies that it operates without any registration or legal permit. In practice, however, fully informal firms may be paying some fees to the municipality (de Vletter 1996).

Figure 1: Informality degrees



Source: Author's illustration based on Krause et al. (2010); GoM 2017, 2014.

3.2 License (in)formality

A business is license (in)formal (2) when it holds a license from a *local* authority. In the case of Mozambique, this is a simplified license from a municipality most of the time.[2] After getting a license, firms are required to register for tax payment and social security. However, many entrepreneurs do not go through these additional procedures, thus only operate under a simplified license.

Although the law is clear about the infinite validity of simplified licenses (GoM 2017, 2012), many entrepreneurs have to pay high annual fees to be allowed to continue using their licenses. Moreover, they have to pay several additional municipal fees, which seem to be enforced in a confusing and arbitrary way (ACIS 2011).

3.3 Tax (in)formality

An enterprise is tax (in)formal (3) when it holds a license and a firm tax code (NUIT) from the national government.[3] Most of the companies that possess a firm NUIT do not have a municipal license but obtained a so-called *alvará*, a more advanced license from a national authority. To obtain the *alvará,* firms need to fulfill many more requirements and pay more money than when only

[2] The responsibility of issuing simplified licenses to micro enterprises was transferred from municipalities to one-stop shops in July 2017 (GoM 2017). A majority of license (in)formal firms in the sample had obtained their license from a municipal office before July 2017.

[3] There also exists a personal NUIT. Every Mozambican citizen is legally required to hold a personal NUIT through which s/he pays income tax. Moreover, firms that have an annual gross revenue equal to or smaller than MZN2.5 million pay simplified taxes and can pay these through the firm owner's personal NUIT instead of the firm's NUIT. Therefore, many micro and small enterprises do not have a firm NUIT but operate through their owner's personal NUIT. Most of the sampled firms that pay simplified taxes are located in the license (in)formality degree in this study because the survey did not inquire about simplified taxes but only about corporate income tax and a firm NUIT. In the future, researchers should try to differentiate between the simplified and the corporate income tax regimes as well as the firm and personal NUIT.

applying for a municipal license (GoM 2014). Most tax (in)formal entrepreneurs pay corporate income taxes through their firm NUIT.[4]

3.4 Full formality

A business is fully formal (4) when it is licensed, and pays taxes and social security to the National Institute for Social Security (INSS). This is inspired by ILO's definition of the informal economy, which involves not only unregistered firms but also unregistered employees in both registered and unregistered firms. Thus, a registered firm is only fully formal if all of its workers are formally registered (ILO 2007). There are a total of 12 firms in the sample which are licensed and pay social security but no taxes. These businesses are situated in the full formality degree in this study because it is legally possible not to pay taxes but social security when a firm is tax-exempt or by paying taxes through the firm owner's personal NUIT.[5]

In Mozambique, it is mandatory for firms to register their workers and employers with the INSS (Barnes et al. 2016). When an enterprise pays social insurance, it also issues formal work contracts to its employees because it has to report fixed monthly wages to the INSS (INSS 2018).

4 Methodology

The present study employs a sequential transformative strategy, in which a quantitative analysis is followed by a qualitative investigation (Creswell, 2009). Thereby, the various methods complement one another with the aim to serve the informality framework in a pragmatic manner. This paper is abductive; it is deductive because it assumes the existence of specific costs and benefits of formalization and tests their presence, and it is also inductive because it explores entrepreneurs' experience with formalization that were not assumed to exist in any specific way. Further, the qualitative part looks at a small number of firms of particular strata, or informality degrees, but aims at generalizing the costs and benefits of formalization where possible.

4.1 Quantitative data and econometric approach

The dataset consists of 516 manufacturing firms that were interviewed in 2012 and 2017. Details about the sampling strategy and data cleaning can be found in the IIM reports (2012, 2017). The sample is not representative of the manufacturing sector because its primary goal is to follow the development of the same enterprises. Nevertheless, the data is deemed accurate and can be used for academic studies. The panel dimension allows me to examine what happened to firms that voluntarily changed their (in)formality degree in 2012–17, thus potentially makes it possible to establish a causal relationship between formalization and firm outcomes.

The first two (in)formality degrees are analysed as one degree (1&2) in the quantitative part because the survey did not inquire about firm registration at local authorities. Table 1 illustrates the number of firms that changed their (in)formality degrees in 2012–17. A total of 187 enterprises switched to another formality status between the two years, either by formalizing to a higher or by informalizing to a lower (in)formality degree. Of the 111 firms situated in (1&2) in 2012, 26 had formalized to (3) and ten to (4) by 2017. Most changes occurred among the firms that were in (3)

[4] For a more detailed overview of taxes, see Barnes et al. (2016).

[5] For the difference between firm NUIT and personal NUIT, see footnote 3.

in 2012, of which 47 formalized to (4), whereas 82 informalized to (1&2). Lastly, 14 firms switched from (4) to (3) and eight from (4) to (1&2).

Table 1: Transition of (in)formality degrees

			2017			
			1&2 Fully informal or license (in)formal	3 Tax (in)formal	4 Fully formal	Observations
2012	1&2	Fully informal or license (in)formal	75 (14.53)	26 (5.04)	10 (1.94)	111 (21.51)
	3	Tax (in)formal	82 (15.89)	71 (13.76)	47 (9.11)	200 (38.76)
	4	Fully formal	8 (1.55)	14 (2.71)	183 (35.47)	205 (39.73)
		Observations	165 (31.97)	111 (21.51)	240 (46.51)	516

Note: Number of enterprises, percentages reported in parenthesis.

Source: Author's calculation based on IIM data.

Informalization might be an entrepreneur's strategy to save costs during the economic crisis that occurred between the two years in Mozambique (Demenet 2014). Since the state's enforcement capacity is weak, it perhaps does not have the resources to inspect if all firms comply with the rules (CoM 2018a; Krause and Kaufmann 2011).

When examining the impact of formalization on a firm, the observed outcomes may not be caused by the firm's formalization itself. Instead, they may be influenced by factors that are correlated with the (in)formality degrees. An owner's educational level, for instance, which is correlated with being registered influences the *level* of firm performance. Consequently, it is necessary to include the right control variables because this 'self-selection' into formality can lead to strong biases (Rand and Torm 2012). Further, there may arise biases if factors that influence the choice to register also affect *changes* in outcomes. Thus, I control for firm characteristics, namely: (i) firm size (log of number of employees); (ii) firm age; (iii) internet access; (iv) production purpose of facility; (v) certificate of right to use land (DUAT); (vi) location; (vii) sector; and for the owner characteristics (viii) gender; and (ix) education. All are dummies except firm size and age. Lastly, the analysis could still be biased if formalization is a function of time-varying factors. With the aim to address these, I apply a matched double difference approach.

Table 2 provides summary statistics for the sample, in which various differences between the two years are outstanding. Between 2012 and 2017, the share of firms situated in the tax (in)formality degree (3) declined from 39 to 21 per cent. The switching firms did not only formalize to the full formality degree (4), which grew from 40 to 47 per cent, but also informalized to the lowest (in)formality degrees (1&2) that grew from 22 to 32 per cent.

The share of firms that made investments significantly declined from 51 per cent in 2012 to 29 per cent in 2017. Enterprises were significantly less likely to have a formal credit in 2017 (11 per cent) than in 2012 (15 per cent) and decreased in size from an average of 17 to 14 workers. Firms were slightly less likely to provide formal work contracts in 2017 (48 per cent) than in 2012 (52 per cent). The share of inspected firms dropped significantly from 79 to only 53 per cent. This decline in inspections may be related to the government's low effectiveness, which declined from 31.3 in 2011 to 24.0 in 2014 on the World Bank's governance indicators (World Bank 2015). Overall, these downward developments are likely to be outcomes of the economic crisis.

Table 2: Summary statistics

	Total		2012		2017	
	Mean	SD	Mean	SD	Mean	SD
Full informality (1) or license (in)formality (2)	0.267	0.44	0.215	0.41	0.320	0.47
Tax (in)formality (3)	0.301	0.46	0.388	0.49	0.215	0.41
Full formality (4)	0.431	0.50	0.397	0.49	0.465	0.50
Outcome variables						
Investments in past 3 years (1=Yes, 0=No)	0.400**	0.49	0.514	0.50	0.287***	0.45
Formal accounts (1=Yes, 0=No)	0.362***	0.48	0.362***	0.48	0.362***	0.48
Formal credit (1=Yes, 0=No)	0.129*	0.34	0.147	0.35	0.110*	0.31
Inspections in last year (1=Yes, 0=No)	0.660***	0.47	0.787***	0.41	0.533***	0.50
Sales to SOEs (1=Yes, 0=No)	0.226***	0.42	0.149***	0.36	0.302***	0.46
Sales to individuals	0.777***	0.32	0.782***	0.320	0.773***	0.32
Formal contracts (1=Yes, 0=No)	0.500***	0.50	0.517***	0.50	0.483***	0.50
Firm characteristics						
Firm size (log employment)	15.720***	33.29	17.364***	32.62	14.076***	33.89
Firm age	17.801***	11.99	15.172***	11.68	20.43***	11.72
Internet access (1=Yes, 0=No)	0.229***	0.42	0.194***	0.40	0.264***	0.44
Facility excl. for production (1=Yes, 0=No)	0.512***	0.50	0.502*	0.50	0.521***	0.50
Province: Maputo City	0.283***	0.45	0.283***	0.45	0.283**	0.45
High tech sector (1=Yes, 0=No)	0.029***	0.17	0.029**	0.17	0.029**	0.17
Owner characteristics						
Male owner (1=Yes, 0=No)	0.917**	0.28	0.948	0.22	0.886**	0.32
Secondary education or above (1=Yes, 0=No)	0.625***	0.48	0.599***	0.49	0.651***	0.48
Observations	1032		516		516	

Note: Mean estimates by year. Unconditional t-tests were carried out for each (in)formality degree by year and by total sample; the reported star levels are the significance levels for degree (4).
Missing observations: The variable 'formal contracts' only contains 499 observations.
*Significance at a 10% level, **Significance at a 5% level, ***Significance at a 1% level.

Source: Author's calculation based on IIM data.

Several positive points are noteworthy. Firms were more likely to sell to state-owned enterprises (SOEs) in 2017, as, on average, 6 per cent of a firm's products were sold to this customer type in 2017 and only 4 per cent in 2012. This could be related to donors' recommendations to promote local content. Although the local content law is not adopted yet, SOEs might already have bought more local products (IGC 2013; LEX Africa 2018). Further, the share of firms with internet access increased significantly from 19 to 26 per cent, and the percentage of women owning or managing firms grew significantly from 5 to 11 per cent. Firm owners and managers seem to be more educated, either because they improved their educational level or because owners and managers changed between the two years. On average, 36 per cent maintain accounting books and this has not changed between the two years. More detailed summary statistics for each (in)formality degree can be found in Table A1. Information from that table is used in the following justification of each control variable.

First, larger firms have a productivity advantage due to scale efficiency, which ultimately leads to higher profits. Thus, it might be the firm's size instead of its formalization that causes higher performance. In the sample, firms of (1&2) are significantly smaller than in (3) and (4), consisting of three, four and 36 workers in 2017 respectively. Hence, I control for firm size.

Second, a firm's age may be correlated with its formality status. Bigsten et al. (2004) found that a higher age is associated with a higher likelihood for firms to be formal. In the sample, firms in (4) are significantly older (23 years) than firms in (3) (19 years) and (1&2) (17 years).

Third, internet access is correlated with firm productivity because firms receive better market information through the internet, can coordinate their production more effectively and may find new business opportunities (Paunov and Rollo 2015). In this paper, the differences in internet access are statistically significant and large, with only three per cent of firms in (1&2), 6 per cent in (3) and 52 per cent in (4) having access to the digital network.

Fourth, if entrepreneurs operate from their home instead of a facility that is held exclusively for production purposes they may not be able to fully concentrate on their firm and possible distractions could lead to efficiency loss. Hence, an indicator variable taking the value 1 if the establishment is used *exclusively* for production purposes, and 0 if it is *mainly* used for production or primarily used for residential purposes, is added as a control (Rand and Torm 2012). In the sample, 49 per cent of (1&2), 40 per cent of (3) and 61 per cent of (4) use the firm's facilities exclusively for production purposes.

Fifth, Mozambique is governed by national and also local authorities, so-called municipalities. These are responsible for raising their own revenues and formulating municipal laws (Hankla and Manning 2017). Hence, firms may be subject to different regulations, depending on their location. Not all interviewed firms are located in a municipality because these do not exist in rural areas (ibid.) and, therefore, I add the provinces instead of the municipalities as dummy variables which control for the firm's location. Local governments and their effectiveness may affect a firm's performance and decision to formalize (Rand and Torm 2012). Moreover, the access to markets may differ between cities located at the coast, like Maputo and Beira, and smaller interior towns such as Chimoio and Moatize (IIM 2012). Hence, with the aim to cover institutional and geographic differences, I construct seven indicator variables that illustrate if the firm is located in a given province (Rand and Torm 2012).

Sixth, formal firms may be more technology-intensive than their informal counterparts, which could influence their performance. Thus, based on 2-digit level ISIC-codes[6], I add a high technology sector dummy (Rand and Torm 2012).[7] On average, only 3 per cent of the sampled enterprises are located in a technology-intensive sector, whereby 5 per cent of (4), 2 per cent of (3) and 0.6 per cent of (1&2) are located in this industry.

Seventh, female-owned businesses may be less productive than those owned by men (Martínez-Zarzoso 2017). Women are more likely to care for their families besides operating their firms, and this may explain the difference in productivity (Benhassine et al. 2016). Thus, a dummy variable that takes the value 1 if the owner is male and 0 if female controls for the owner's gender. In 2017, 93 per cent of the enterprises located in degrees (1&2) are male-owned, while this is only the case

[6] ISIC: International Standard Classification of All Economic Activities; a United Nations industry classification system. It is used to classify data according to the firm's type of economic activity (UNSTATS 2018).

[7] High technology sectors are the chemicals, machinery, electrical equipment, electronics, motor vehicles and other transport equipment sectors.

for 90 per cent of firms in degrees (3) and 85 per cent in (4) (statistical significance in most degrees). This can be explained by the fact that the enumerators interviewed a firm's manager when the owner was not available. While owners of micro firms are more likely to manage their business, owners of larger firms often hire a female manager. Since the percentage of interviewed women is higher for small and medium than micro firms, this may explain why fewer men are owning/managing the firms of (I)Ds (3) and (4). Unfortunately, the data does not allow to distinguish between owner and manager.

Eighth, the owner's educational level may correlate with a firm's formality status and performance. Krause et al. (2010) show that lower educated Mozambican entrepreneurs are less likely to formalize. Moreover, a lower education of informal firm owners can partly explain the productivity gap between informal and formal enterprises (Porta and Shleifer 2008). About 50 per cent of owners in degree (1&2), 51 per cent in (3) and 82 per cent in (4) held a secondary education or higher.

4.2 Qualitative data

After the quantitative data collection, additional qualitative methods were employed. Participant observation was used during the formalization procedure of a shoemaker. I assisted this business to formalize from full informality (1) to license informality (2). While the other methods mainly look at the mid- to long-term consequences of formalization, this one gives insights into the initial phase of formalization. This is related to previous findings that some firms stay informal if the initial costs of formalization are too high, even if it is profitable afterwards (McKenzie and Sakho 2010).

In addition, semi-structured interviews with 17 government officials and experts supplied background information about firms' legal obligations. Moreover, this group of informants was asked for an assessment on what costs and benefits of formalization exist in Mozambique. Their evaluations were used for data triangulation, i.e. they were compared to statements of entrepreneurs with the aim to understand what costs and benefits of formalization actually exist and which ones are only perceived due to mis-information.

Afterwards, the quantitative sample was divided into four different strata, the (in)formality degrees, and qualitative interviews with several entrepreneurs from each strata, 16 in total, were carried out (Teddlie and Yu 2007: 90). There were several reasons why additional qualitative interviews were crucial. First, the survey did not cover all aspects related to formalization so that qualitative interviews provided complementary information. Second, the survey was formulated by European researchers, who might not know what actually matters for entrepreneurs in Mozambique (Gough et al 2014). Thus, more open conversations, in which interviewees contributed their own opinions on the topic, gave invaluable insights. Third, entrepreneurs will only formalize and benefit if they perceive that formalization entails benefits. There might exist benefits of formalization in Mozambique but if firm owners do not know about their existence, they will not make use of them. To find out it if this is the case in Mozambique, qualitative interviews were important.

5 Findings

5.1 Relation between formalization and intermediate outcomes

Most studies that investigate the outcomes of formalization try to establish a causal relationship between formalization and firm performance. However, in this paper, it is not possible to examine

the effects of formalization on performance due to missing responses in the 2012 data. Instead, I explore the association between formalization and seven intermediate outcomes, which represent the mechanisms through which formalization ultimately affects firm performance. Specifically, I look at the relationship between formalization and a firm's likelihood to invest (I), hold formal accounts (II), have a formal loan (III), be inspected (IV), sell to SOEs (V), sell to individuals (VI), and issue formal contracts to workers (VII). All are dummy variables except for sales to individuals, which are represented by the share of the most important product being sold to individuals.

Table 3 illustrates OLS estimates for the relationship between a changed (in)formality degree and the seven intermediate outcomes. Column (a) depicts the results for firms that formalized from any of the three lowest (in)formality degrees to the highest one, full formality (4). Thereby, it compares the changes in outcomes between the 57 firms that formalized to (4) in 2017 (treatment group) and the 251 enterprises that remained in the other three degrees (control group). Column (b) illustrates the outcomes of formalization from (1&2) to tax (in)formality (3), while column (c) shows the consequences of informalization from higher informality degrees to license (in)formality or full informality (1&2).

Table 3: Intermediate outcomes by (in)formality degrees

	(a) INSS switcher (1&2) > (4) (3) > (4)	(b) NUIT switcher (1&2) > (3)	(c) License switcher (4) > (1&2) (3) > (1&2)
Investments	0.084	-0.216	-0.119
	(0.93)	(-1.36)	(-1.43)
Formal accounts	0.168**	0.081	-0.0004
	(2.12)	(0.97)	(-0.01)
Credit	0.081	0.037	-0.074
	(1.29)	(0.34)	(-1.29)
Inspections	0.168*	0.212	-0.170*
	(1.81)	(1.36)	(-1.94)
SOEs	0.232***	-0.248	-0.330***
	(2.71)	(-1.32)	(-5.71)
Individuals	-0.069*	0.074	0.086**
	(-1.72)	(0.96)	(2.02)
Formal contracts	0.310***	0.272*	-0.186***
	(3.13)	(1.81)	(-2.71)
	(299 obs)	(106 obs)	(389 obs)
Observations	308	110	402

Note: There are less observations for 'formal contracts', which are reported in parenthesis. Control variables are documented in Table 2 (full set of controls).

*Significance at a 10% level, **Significance at a 5% level, ***Significance at a 1% level.

Source: Author's calculation based on IIM data.

First, better access to credit (III) after formalizing might increase a firm's investments (I) (Rand and Torm 2012). While investments were shown to increase through formalization, several studies found that access to credit does not improve (Benhassine et al. 2016). For Mozambique, our results do not depict any statistically significant relationship between formalization and credit or formalization and investments.

Second, Benhassine et al. (2016) illustrate that formalization leads to a higher likelihood to maintain accounting books. In Mozambique, firms that change their (in)formality degree to full formality (4) are 17 per cent more likely to maintain accounting books.

Third, formalization may result in fewer bribe payments, which a firm is subject to when it wants to stay informal. However, in Mozambique, a higher (in)formality degree seems to lead to more regular inspections, and therefore to more instead of fewer bribes (Krause et al. 2010). Since it is

not possible to investigate the association between formalization and unofficial payments due to missing responses, I examine the relation to inspections (IV) instead. Previous results are confirmed because formalization to (4) leads to a 17 per cent higher likelihood for a firm to be inspected, whereas informalization to (1&2) results in a 17 per cent lower likelihood.

Fourth, formalization might change a firm's customer base (Benhassine et al. 2016). Full formality (4) enables a firm to issue formal receipts, which ultimately makes it possible to do business with formal customers such as SOEs. In contrast, enterprises of lower degrees cannot do business with formal clients and therefore are more likely to sell to individual persons. These hypotheses are confirmed: formalization to (4) results in higher shares of sales to SOEs and lower shares of sales to individuals, whereas informalization to (1&2) generates the opposite. Specifically, formalization to (4) increases the likelihood to sell to SOEs by 23 per cent and decreases the share that is sold to individuals by 3 per cent, whereas informalization to (1&2) leads to a smaller likelihood to sell to SOEs (33 per cent) and a higher one to individuals (9 per cent).

Fifth, providing formal work contracts implies that a business becomes more established 'with production plans moving from a narrow-focused short-term optimization strategy to a longer-term business approach' (Rand and Torm 2012: 993). Thus, if formalization induces a firm to hire more permanent labour, it may improve its overall situation. Indeed, formalization to (4) brings a 31 per cent higher likelihood for firms to provide formal work contracts, while informalization to (1&2) leads to a 19 per cent lower likelihood. Besides, formalization from (1&2) to (3) results in a 27 per cent higher likelihood to provide formal contracts.

Most of the results on formalization to tax (in)formality are not significant and one explanation for this might be that switching to that degree does not entail specific consequences. Another explanation could be that the sample size is too small to create statistically significant results.

In sum, formalization to full formality (4) results in both costs and benefits. Enterprises gain advantages by being more likely to maintain formal accounts, sell more to SOEs and issue formal contracts. At the same time, they are more likely to be inspected which might involve bribe payments. Enterprises that informalize to (1&2) save costs by being inspected less and providing fewer formal contracts. However, they lose the benefit of selling to SOEs, thus perhaps sell smaller quantities to individuals only.

5.2 Matched double difference approach

The above regressions might suffer from an endogeneity problem if the sampled firms are not comparable due to unobserved differences. The following nonparametric matched double difference (DD) approach in which four nearest neighbours are matched to one treated observation reduces the potential selection bias and is in line with Imbens et al. (2004).

Table 4 compares differences in the seven intermediate outcomes for firms that formalized to (4) with matched firms that stayed in (1&2) or (3) in 2012–17. Row A includes matches based on firm size, location, and high technology sector and row B involves matches based on the whole set of control variables (see Table 2), whereas row C matches on all control variables and additionally the differences in control variables between 2012 and 2017 (DOCs), which is similar to a fixed effects approach. Lastly, row D illustrates the results of FE regressions to check for robustness of the DD results.

When matching on the full set of variables, the average treatment effect of the treated (ATT) is well determined for formal accounts, sales to SOEs and individuals and formal contracts. However, when matching on DOCs, the ATT only remains significant for sales to SOEs and

formal contracts, while it becomes significant for formal credit and inspections. The FE estimates are significant for formal accounts, sales to SOEs, sales to individuals and formal contracts.

Table 4: Intermediate outcomes and formalization to (4), matched DD estimates

	Investments	Formal accounts	Credit	Inspections	**State enterprises**	Individuals	**Formal contracts**
A: Levels specification –	0.104	0.133	0.143*	0.210**	0.343***	-0.105***	0.369***
firm-specific controls only	(1.15)	(1.60)	(1.86)	(2.05)	(4.65)	(-2.37)	(3.47)
B: Levels specification –	0.072	0.164**	0.082	0.181	0.334***	-0.077*	0.328***
full set	(0.74)	(2.02)	(1.17)	(1.75)	(4.52)	(-1.78)	(2.91)
C: Difference and levels	0.059	0.122	0.109*	0.215**	0.273***	-0.028	0.373***
specification (DOCs)	(0.57)	(1.55)	(1.77)	(2.02)	(4.05)	(-0.70)	(3.34)
FE estimates	-0.161	0.274*	0.017	-0.060	0.219**	-0.104**	0.218*
	(-1.16)	(1.89)	(0.27)	(-0.46)	(2.27)	(-2.28)	(1.67)
Total observations	308	308	308	308	308	308	299
Treated observations	54	54	54	54	54	54	45

Note: Three observations dropped due to treatment variable missing (twelve dropped for formal contracts). Average treatment effect of the treated (ATT) using bias corrected nearest neighbour matching (four matches per observation). *t*-values (reported in parenthesis) are heteroscedasticity robust. Estimations done using the nmatch command in Stata (Imbens et al. 2004). Control variables are documented in Table 2.

(A) Levels specification: Matching based on initial values (2012 observed characteristics) only - firm size, location and high technology sector

(B) Levels specification: Matching based on initial values (2012 observed characteristics) only – full set of controls

(C) Difference and level specification: Matching based on initial values of full set of control variables (2012 observed characteristics) and differences (during 2012–17) in the selected performance variables FE estimates.

*Significance at a 10% level, **Significance at a 5% level, ***Significance at a 1% level

Source: Author's calculation based on IIM data.

Overall, the results are clear for two intermediate outcomes: formalization to full formality increases the likelihood for firms to sell to SOEs and to provide formal contracts. Sales to SOEs might imply that firms sell higher quantities and better-quality products than when selling to individual persons only, while formal contracts might improve the firm's long-term stability by attracting more permanent, higher skilled labour. The findings for the intermediate outcomes formal accounts, credit, inspections, and sales to individuals are ambiguous because they are not robust to both models. Lastly, formalization does not seem to increase the likelihood for firms to make investments because this association is insignificant.

While these findings seem to be disappointing at a first glance, they actually confirm what previous studies have found. In the African countries Malawi and Benin, the association between formalization and most of the examined intermediate outcomes are insignificant. Similar to our study, the authors found that formalization does not result in a higher likelihood for firms to have a credit (Benhassine et al. 2016; Campos et al. 2015). Therefore, formalization was said to only have limited effects on intermediate outcomes. Moreover, just like in this study, Demenet et al. (2016) show that formalization does not lead to more investments among businesses in Viet Nam. Although I cannot examine the impact of formalization on overall firm performance, enterprises that formalized in Benin were not even more likely to gain higher profits such that the authors concluded that formalization only brings few to no benefits to firms (Benhassine et al. 2016). Qualitative data help us evaluate this statement for the case of Mozambique.

Due to the small sub-sample, it is not possible to obtain trustworthy results for the effects of formalization to tax (in)formality (3) on firms. However, this (in)formality degree is examined more closely in the qualitative analysis. To strengthen the results about formalization I additionally look at the impact of informalization, which should be the opposite of formalization.

Table 5 illustrates the effects of formalization on firms that informalized from (3) or (4) to (1&2). When matching on DOCs, the ATT is well determined for formal credit, sales to SOEs and individuals and formal work contracts. FE estimates are significant for investments, credit and inspections and formal contracts. It is reasonable for firms that informalize to lose the benefit of access to credit as banks may require them to be able to show regular tax payments, which they cannot provide when only operating under a municipal license. As formalization leads to more formally contracted labour, it makes sense that the opposite is valid for informalization, as firms perhaps rely on more casual labour. The findings for the remaining coefficients are less clear. In sum, informalization leads to a lower likelihood for firms to have a formal credit and to provide formal contracts.

Table 5: Intermediate outcomes and informalization to (1&2), matched DD estimates

	Investments	Formal accounts	**Credit**	Inspections	State enterprises	Individuals	**Formal contracts**
A: Levels specification –	-0.085	0.018	-0.053	-0.223**	-0.292***	0.056	-0.241**
firm-specific controls only	(-0.91)	(0.30)	(-0.89)	(-2.27)	(-4.52)	(1.36)	(-2.88)
B: Levels specification –	-0.051	0.027	-0.153***	-0.197**	-0.388***	0.090**	-0.255***
full set	(-0.54)	(0.44)	(-2.52)	(-2.16)	(-5.83)	(2.10)	(-3.04)
C: Difference and levels	-0.004	0.022	-0.124**	-0.080	-0.254***	0.088**	-0.237***
specification (DOCs)	(-0.04)	(0.38)	(-2.26)	(-0.82)	(-3.85)	(2.00)	(-2.96)
FE estimates	-0.334***	0.005	-0.111*	-0.393***	-0.002	-0.011	-0.138*
	(-3.28)	(0.10)	(-1.87)	(-3.40)	(-0.04)	(-0.20)	(-1.73)
Total observations	402	402	402	402	402	400	389
Treated observations	87	87	87	87	87	85	74

Note: Three observations dropped due to treatment variable missing (twelve dropped for formal contracts). Average treatment effect of the treated (ATT) using bias corrected nearest neighbour matching (four matches per observation). t-values (reported in parenthesis) are heteroscedasticity robust. Estimations done using the nmatch command in Stata (Imbens et al., 2004). Control variables are documented in Table 5.1 and 5.2

(A) Levels specification: Matching based on initial values (2007 observed characteristics) only - firm size, location and high-technology sector

(B) Levels specification: Matcheing based on initial values (2007 observed characteristics) only – full set of controls

(C) Difference and level specification: Matching based on initial values of full set of control variables (2007 observed characteristics) and differences (during 2012-17) in the selected performance variables

*Significance at a 10% level, **Significance at a 5% level, ***Significance at a 1% level

Source: Author's calculation based on IIM data.

It is important to notify that the economic and public debt crises that occurred from 2013 onwards in Mozambique might have influenced these results. The government itself was strongly hit by the crisis such that it had scarce resources, and this could be the reason why the number of firm inspections generally dropped (see Table 2) (IIM 2017). During better times, the association between formalization and inspections might have been significant as previous research and the qualitative interviews found that higher (in)formality degrees are subject to more inspections and therewith to more instead of fewer bribe payments than firms of lower degrees. The remaining intermediate outcomes might have been affected in a similar way.

Moreover, the sample is not representative such that this study can only shed light on manufacturing firms that have been established before 2009. Nevertheless, having a reliable panel dataset for an African country is remarkable in itself and I believe that the present study gives important insights into the topic of formalization in Mozambique. Further, it cannot be excluded that unobserved time-varying factors influenced the sampled firms' decision to formalize. However, I made some background research and am confident that the main potential factor, i.e. changes in local policies, did not occur in 2012–17.

Lastly, reverse causality might be an issue if higher performance caused formalization and not the other way around. Again, the qualitative data is helpful in this regard because most interviewees explained that they experienced a massive change in their business after they had formalized (and not before).

6 Qualitative findings

We have now learned about a few intermediate outcomes that enterprises are subject to when formalizing. Several of the intermediate outcomes are not robust to both DD and FE estimates, thus are ambiguous. Moreover, the two clearest variables, i.e. sales to enterprises and formal contracts, rather represent benefits than costs of formalization and I do not have enough data to assess if the costs generated by taxes, fees, bribes, initial registration, and firm operation during and after the formalization are outweighed by these benefits. In turn, I make use of qualitative methods which 1) explain some of the quantitative results; and 2) examine additional effects of formalization, including costs.

6.1 Participant observation

The author assisted a shoemaker to formalize his business from full informality (1) to license (in)formality (2) with the aim to understand what costs and benefits firms are subject to during the initial phase of formalization, i.e. registration. The whole process took around one and a half months and the information we received from different government agencies was not consistent with Mozambican laws. A detailed description of each day can be obtained upon request while this paper only provides a short summary of the findings.

According to Decree *No. 39/2017* (GoM, 2017), it should be quick, easy, and cheap to get a license for a shoemaker who does not employ any workers. He only needs to go to a one-stop shop (BAÚ), hand in an application form, his ID, personal tax code (NUIT), and a name reservation of his business. The name reservation can even be obtained at the BAÚ itself and is subject to a fee (300MZN), whereas the license itself costs 1,639MZN. Within one day he would obtain a simplified license *with indefinite validity*.

In practice, it was a long, difficult and expensive process to obtain a license. We were sent back and forth from the BAÚ to various municipal offices in both Maputo City and Matola, and had to hand in many more documents than stated in the law (in fact, we had to hand in several documents that only bigger firms have to submit in order to obtain a more advanced license, a so-called alvará). In total, we paid 5,700MZN and needed 32 days to finally get a simplified license that will only be valid if the shoemaker continues paying an annual fee of 3,000MZN. Moreover, it was not the BAÚ but the municipality in Matola which issued the license. Besides, we had to ask a professional accountant for advice because it was not possible to get reliable information from the public officials. Table 6 summarizes what should have happened according to the law and what actually happened in practice when we tried to get a license.

Overall, the first step of formalization is highly expensive and challenging. The license cost more than double of the shoemaker's monthly net profit, implying that it would have been impossible for him to cover these costs himself. It will be equally difficult for him to pay the fee that is due after a year to be allowed to continue using the license. Moreover, we had to get advice from an accountant and a few other Mozambican citizens, , and the process would have been more time-consuming for the shoemaker alone without these contacts. Lastly, we obtained the license in 32 days only because I used a rental car, whereas it takes around three hours to get from the

shoemaker's house to Matola's BAÚ/municipality and back in public transportation. This is valuable time during which he prefers working instead of going through a process where the results are highly uncertain and expensive.

Two positive points are that the shoemaker does not need to be afraid anymore of being shut down or get his material confiscated by municipal officials and that he got access to a market in downtown Maputo where vendors are only allowed to operate if they have a license. However, even if these benefits outweigh the costs of formalizing, it would have been unlikely and challenging for him to go through this process himself. Thus, even if it is profitable to get a license, it is unrealistic for micro firms like the shoemaker's one to formalize and subsequently benefit in Mozambique.

Table 6: Formalizing a business – *de jure vs. de facto*

De Jure	De Facto
1,639MZN (27US$) (0.5 times minimum wage for public sector, i.e. 0.5x3,278 in 2017)	5,700MZN (100US$)
1 day	32 days
Indefinite validity	Annual fee of 3,000MZN (52US$)
Issuing authority: Any one-stop shop	One-stop shops and Municipal Councils in Maputo City and Matola

Source: Author's calculations based on GoM 2017 and qualitative participant observation.

6.2 Semi-structured interviews

The author asked entrepreneurs what they themselves regard as costs and benefits of formalization to learn from those who are directly affected. While there are a few aspects that almost all firms have in common and these are outlined first, the interviewees' perceptions mostly depend on their respective (in)formality degree and this is described secondly.

Commonalities

A major difficulty for Mozambican micro, small and medium enterprises (MSMEs) is lacking information on formal regulations. Fully informal firms (1) often cannot distinguish between taxes and fees and do not know why they pay specific levies. Most of them have never tried to formalize because they are not certain where to start nor what benefits this might entail. Even if they are aware of potential benefits the major problem is a general uncertainty about what additional costs a license might bring and if they will actually be able to obtain promised benefits. License (in)formal firms (2) are slightly more informed but often do not know how to access potential benefits of formalization, for example how to contact more formal clients to start doing business with them or how to get access to credit. Tax (in)formal enterprises (3) have much more information but often do not know the benefits of social security. Fully formal businesses (4) said paying taxes is difficult and confusing so that it often happens that they have to pay a fine because they did not know that they had to comply with a certain tax rule. Krause et al. (2010: 6) similarly summarized that it is difficult to get 'easily understandable and consistent information on the formal requirements businesses have to comply with'.

Regarding the costs of formalization, for fully informal firms anything is expensive even if the amounts are small because they lack regular cash inflows. Many of them do not sell any products for several weeks so that a license is an expensive investment, which is not of the highest priority as they are fighting for survival. Moreover, as the shoemaker's example showed, licenses are not of infinite validity but linked to high annual fees, which most fully informal businesses cannot afford. In turn, a license's short duration 'hardly reflects the capital investments [which firms] make' (Ahlers et al. 2013: 478). For the remaining three (in)formality degrees, the problem is less

of the monetary cost of registration but more of the time and personal intangibles like stress and frustration that they have to invest during bureaucratic procedures. Entrepreneurs must spend a lot of time until they are able to pay fees and taxes, and it regularly happens that officials ask them for bribes in order to make the process smoother. This also implies that it is helpful to have contacts in the government's institutions or to know someone who can assist with these complex formalities. Many entrepreneurs think that business success it not related to a firm's formality status but to having useful personal contacts. Fully formal companies, for example, said that in order to win a public tender it is more important to know politicians than to comply with all regulations. In sum, formalization entails high costs in terms of financial and social capital, as well as time and personal intangibles.

One benefit that most interviewees mentioned is the one of legal recognition by the state. This means that, once formalized, they do not need to be afraid of being closed down or get their material confiscated. However, this benefit is relatively weak because many firms still have to pay high fines or bribes because state inspectors mysteriously find contraventions. Moreover, firms that are semi-formal are only recognized by the specific authority from which they acquired their license or tax code, while the other authorities still regard them as informal. Further, with the license itself firms cannot fully make use of property rights but most of the time need to show additional documents, for example, a DUAT to obtain credit.

While the GoM and donors promote access to credit as representing a benefit of formalization (ILO 2015), this paper's findings point to the opposite. A majority of the more informal firms cannot obtain credit because banks require them to show formal book keepings or a bank account history, which they do not have. For more formal firms, high interest rates of 16 to 36 per cent render loans unattractive (Ayani 2015). Moreover, the Mozambican state recently seems to borrow high amounts from private banks due to the public debt crisis so that there is almost no money left for the private sector (CoM 2018b). Studies on other African countries similarly identified a non-existence of the formalization benefit of access to credit (Benhassine et al. 2016).

The following sub-sections give a few more insights into each (in)formality degree, and the costs and benefits involved in formalizing to the subsequent (in)formality degree, i.e. the costs and benefits of formalization from (1) to (2), from (2) to (3) and from (3) to (4).

Full informality

As mentioned, fully informal enterprises lack regular income. Further, most of them are of micro size and work from unstable premises on public sidewalks such that they do not have access to electricity or running water. A few of them used to have a municipal license (2) but were not able to obtain benefits such as a micro credit or more customers and do not get inspected regularly anyway so that they decided it is not worth to register. This situation in combination with the owners' relatively low level of education and lack of information renders it difficult to run a business. It is costly and challenging to formalize and even if they manage to do so, further investments might be required to access potential benefits.

Most fully informal enterprises will never formalize due to their owners' characteristics and the barriers that the country's institutions are creating. Even if they manage to formalize, the high costs of registration and further investments necessary to obtain purported benefits are likely to outweigh the advantages of being formal. Other studies similarly found that it is only bigger firms which are similar to already formal firms that benefit from formalization, 'suggesting the existence of a threshold below which there is no gain in formalizing' (Demenet et al. 2015: 327).

License (in)formality

License (in)formal businesses are highly diverse, with some of them resembling fully informal enterprises and others being comparable to tax (in)formal firms. In fact, a few of them pay simplified taxes instead of corporate income taxes so that they should be located in the tax (in)formality degree. However, the quantitative survey did not inquire if firms are paying simplified taxes and therefore it is not possible to know quantitatively which firms that have a municipal license but no firm NUIT are actually paying simplified taxes.[8] Future studies should ask whether firms pay simplified or corporate income taxes.

Formalization to tax (in)formality would happen through the application for a firm NUIT. Holding a firm NUIT includes the possibility to issue formal receipts, which formal clients such as SOEs and the government request when purchasing products from the private sector. Most license (in)formal firms cannot sell to formal clients because they do not have a firm NUIT such that formalizing to a higher (in)formality degree might be a good idea for them. However, doing business with formal clients does not happen automatically through formalization. Many interviewees said they do not know how to get into contact with SOEs. Moreover, many thought that they would have to acquire high quantities of raw material before being able to sell to more formal companies but that they do not have the sufficient means to do so. According to them, formal companies do not want to make advance payments so that it becomes impossible for firms with low financial capital to sell to formal clients. If this is actually true or if firms just do not have sufficient capacities or information to negotiate with bigger enterprises remains a topic of future investigations.

Overall, license (in)formal firms only benefit from formalizing to tax (in)formality (3) if they have prospects of high growth that would exclusively be reachable through formalization. However, if formalization does not guarantee specific benefits such as selling to formal clients whom they cannot access under their current status, the costs of formalization are likely to outweigh the benefits. As the quantitative analysis already showed, there do not seem to exist many other strong benefits of formalization in Mozambique besides selling to formal clients.

Tax (in)formality

Tax (in)formal enterprises had better start-up conditions than firms in (1) and (2) such as financial help or political contacts. One of the interviewed entrepreneurs obtained large machines as compensation when the company where he used to be employed closed due to bankruptcy. These better conditions and their owners' higher educational levels might have made it easier for these firms to do business in general, to formalize and benefit. Many of them do business with other formal companies and even sell to the government despite their non-compliance with some regulations. Compared to fully formal firms, two peculiarities are that their workers are not registered for social security and that they generally have a smaller number of employees. Most of their employees work on a casual or part-time basis which allows the firm to be more flexible during difficult times. If there is no work to do, the workers just do not come. Besides, some interviewees did not seem to trust the government and thought their money would disappear if they paid social security contributions.

Tax (in)formal firms are those that overlap the strongest with other studies' observations: they seem to rationally choose the informality level that is most useful to them (Nelson and De Bruijn

[8] Firms that pay simplified taxes do not need to have a firm NUIT. Instead, they can pay simplified taxes through the owners' personal tax code. See footnote 3 for further clarification.

2005). If they formalized to full formality, they would lose their flexibility due to which they manage to survive because they would have to pay their employees more regularly and perhaps also higher wages (the minimum wage). Moreover, they might be subject to more inspections if they formalized entirely which would involve high fees and potential bribes. If they informalized, they would perhaps lose the benefit to sell to formal clients. In turn, they are located in the (in)formality degree that is optimal for them (but not necessarily for their workers[9]).

Full formality

In contrast to firms in (1)–(3), fully formal enterprises employ more workers, thus are of small or medium size. Most of them are highly visible in public because they are located in the city center of Maputo (or Matola), thus are inspected more often and therefore cannot choose to be more informal. They have higher labour costs than the other degrees because they pay the minimum wage and social security contributions for their workers. However, these higher labour costs also involve a positive aspect: they might be able to attract higher-skilled and more permanent labour, which ultimately fortifies the stability of their business, as already mentioned in the quantitative analysis. While they benefit from selling to formal clients, they are subject to a further disadvantage of formality: regular inspections. Although the quantitative results are not fully clear on this aspect[10], fully formal firms complained that they are inspected on a regular basis and that the inspectors try to find small breaches in order to extract bribes. Moreover, interactions with the state such as when trying to pay taxes, are challenging and often involve unofficial payments. Thus, overall, fully formal firms might have a few more benefits than enterprises of lower (in)formality degrees but are also subject to higher costs. In order to save these costs, fully formal entrepreneurs apply small informal practices such as hiring unreported casual labour or purchasing supplies from unregistered vendors. In turn, it is questionable if there exists any firm in Mozambique that is entirely formal.

7 Discussion and conclusion

The present paper examines the costs and benefits of formalization for Mozambican manufacturing MSMEs. It updates a conceptual framework that consists of four (in)formality degrees in order to take into account firm heterogeneity more accurately than previous research. This is followed by a quantitative and qualitative analysis.

Overall, it is challenging to generalize what costs and benefits of formalization exist in Mozambique due to the heterogeneity of firms. Further, many entrepreneurs lack information or are misinformed so that one should not rely on the qualitative findings alone. However, a combination of the different methods demonstrates very well that the benefits of formalization are few and the costs high. One of the strongest benefits is the possibility to sell to formal clients, i.e. to SOEs and the government. Moreover, formalization allows firms to be legally recognized by the state, although the extent of this recognition depends on the (in)formality degree.

[9] The costs and benefits of formalization for workers themselves remains a topic of future investigation.

[10] One reason why the quantitative result is not significant could be the general decrease of inspections between 2012 and 2017, perhaps due to the economic crisis that weakened the state.

The costs of formalization in terms of fees, (taxes,) time, social capital and personal intangibles are high. For firms in degrees (1) and (2) these costs are likely to outweigh the benefits of formalization, while they are bearable but expensive for enterprises in (3) and (4).

Formalization does not seem to be of the highest priority for Mozambican firms but rather represents a Westernized agenda. It is important to examine the potential consequences of a policy that is pursued by the country's government and strongly encouraged by international donors. Thereby, I showed that some of the benefits of formalization that are currently being promoted in Mozambique, particularly the one of access to credit, actually do not exist or are weak.

In terms of policy recommendations, it would be helpful for the government of Mozambique to start implementing its (well-formulated) laws and improve its service provision in a committed way, thereby making sure that the costs of formalization are indeed low. Moreover, instead of forcing the most informal firms to formalize, the government should accept that informality will remain the norm for most enterprises. These firms need social programs to alleviate poverty. Bigger firms should formalize but the government needs to ensure that its interactions with entrepreneurs do not involve corruption but actually support firms. Training and micro-credit programs would be helpful because these are scarce but highly needed. Lastly, a general dissemination of information on how laws and regulations work, and how firms can connect with one another, would be useful.

Even though formalization perhaps increases the tax revenues of governments, donors should ensure that they have strong evidence on the consequences of formalization for firms. If firms loose-out when being forced to formalize, well-intented policies will not help governments either. Lastly, firms in Asia might gain from formalization but this does not seem to be automatically the case in Africa.

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Appendix

Table A1: Summary statistics by (in)formality degree

a: Full informality and license (in)formality (1&2)

	2012		2017	
	Yes	No	Yes	No
Investments	0.423	0.538*	0.188	0.333***
Formal accounts	0.063	0.444***	0.036	0.516***
Credit	0.072	0.168*	0.091	0.120
Inspections	0.631	0.830***	0.255	0.664***
State enterprises	0.063	0.173**	0.055	0.419**
Individuals	0.929	0.741***	0.930	0.698***
Formal contracts	0.252	0.589***	0.104	0.667***
Firm characteristics				
Firm size (log employment)	4.387	20.921***	3.115	19.228***
Firm age	11.658	16.136***	17.139	21.997***
Internet access	0.009	0.244***	0.030	0.373***
Facility excl. for production	0.378	0.536**	0.485	0.538
High tech sector	0.018	0.032	0.006	0.040*
Owner characteristics				
Male Owner	0.973	0.941	0.933	0.863*
Secondary education or above	0.414	0.649***	0.497	0.724***
Observations	111	405	165	351

b: Tax (in)formality (3)

	2012		2017	
	Yes	No	Yes	No
Investments	0.525	0.506	0.252	0.296
Formal accounts	0.090	0.535***	0.126	0.427***
Credit	0.160	0.139	0.072	0.121
Inspections	0.760	0.804	0.477	0.548
State enterprises	0.060	0.206***	0.216	0.326*
Individuals	0.904	0.704***	0.866	0.747***
Formal contracts	0.251	0.688***	0.299	0.533***
Firm characteristics				
Firm size (log employment)	5.565	24.832***	3.577	16.953***
Firm age	12.985	16.557***	19.396	20.714
Internet access	0.020	0.304***	0.063	0.319***
Facility excl. for production	0.505	0.500	0.396	0.556**
High tech sector	0.005	0.044**	0.018	0.032
Owner characteristics				
Male Owner	0.950	0.946	0.901	0.881
Secondary education or above	0.510	0.655**	0.514	0.689***
Observations	200	316	111	405

c: Full formality (4)

	2012		2017	
	Yes	No	Yes	No
Investments	0.551	0.489	0.371	0.214***
Formal accounts	0.790	0.080***	0.696	0.072***
Credit	0.176	0.129	0.142	0.083*
Inspections	0.898	0.714***	0.750	0.344***
State enterprises	0.283	0.061***	0.512	0.120***
Individuals	0.581	0.913***	0.619	0.904***
Formal contracts	0.924	0.252***	0.838	0.181***
Firm characteristics				
Firm size (log employment)	35.902	5.145***	26.467	3.301***
Firm age	19.210	12.511***	23.171	18.047***
Internet access	0.463	0.016***	0.517	0.043***
Facility excl. for production	0.566	0.460*	0.604	0.449***
High tech sector	0.059	0.009**	0.050	0.011**
Owner characteristics				
Male Owner	0.932	0.958	0.846	0.920**
Secondary education or above	0.785	0.476***	0.821	0.504***
Observations	205	311	240	276

Note: Mean estimates by year. I performed unconditional t-tests for each (in)formality degree by year (see 'No' columns)

Missing observations: 'Formal contracts' includes 499 observations

*Significance at a 10% level, **Significance at a 5% level, ***Significance at a 1% level

Source: Author's calculation based on IIM data.