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The bright side of formalization policies! Meta-analysis of the benefits of policy-induced versus self-induced formalization

Andrea Floridi, Binyam Afewerk Demena and Natascha Wagner

Department of Development Economics, Erasmus University Rotterdam, International Institute of Social Studies, The Hague, The Netherlands

ABSTRACT

This paper provides a meta-analysis of the impact of business formalization on performance. We exploit a meta-dataset of 1,271 estimates derived from 20 studies available until October 2019. The analysis reveals that formalization is associated with fairly small benefits that take time to materialize. We then exploited the difference between policy-induced formalization and self-induced formalization investigating underlying effects, publication bias, and sources of heterogeneity. Policy-induced formalization brings large benefits, whereas self-induced formalization only results in medium benefits, suggesting that indeed formalization can be spurred by adequate policy actions. To be most effective, formalization policies should be implemented with information sessions, trainings/workshops, and business development services to unleash the growth potential of newly formalized firms in the most potent way.

I. Introduction

Informal firms represent the most micro and small enterprises in developing countries. Their relevance for the private sector and potential contribution to economic growth induce governments and policymakers to take actions promoting the formalization of informal enterprises.

Despite such efforts, policies fostering business formalization do not seem to achieve the expected transformation (Floridi, Demena, and Wagner 2020). If formalization policies have limited impacts, it is not clear whether those firms opting for formalizing actually gain advantages from switching status. A popular view is that enterprises take decisions concerning business formalization based on the costs and benefits associated with formality (Maloney 2004). If business registration is the result of a cost-benefit analysis, limited advantages associated with formalization may explain the resilience of informal entrepreneurs and the limited effects of formalization policies.

Thus, a crucial question for development studies and policymakers is whether firms benefit from formalizing their business. To address this question, a rapidly growing empirical literature investigates the effects of formalization on firms switching

formality status. The existing studies represent two strands of literature – results from policy-induced actions via reforms and field experiments, and self-induced formalization independent of external interventions. The evidence gathered by now is far from being conclusive. Studies report heterogeneous findings, analyse the effects on various performance indicators, and employ different econometric models and specifications.

This study uses meta-regression analysis (MRA) to synthesize the empirical literature and consolidate the available evidence. The analysis exploits the difference between policy-induced and self-induced formalization, identifying the respective genuine effects, publication bias, and other sources of heterogeneity. We believe that this exercise is timely given the reported heterogeneity of the findings. Moreover, this study provides useful insights for policymaking, as it allows to assess whether formalization policies are to some extent successful, at least in terms of improving business performance.

Whilst meta-analyses have been carried out in several areas of economics and business management (Tingvall and Ljungwall 2012; Demena 2015), few reviews and meta-analyses explore the impact

CONTACT Natascha Wagner ✉ wagner@iss.nl 🖅 Department of Development Economics, Erasmus University Rotterdam, International Institute of Social Studies, Kortenaerkade 12, The Hague 2518AX, The Netherlands

of policy actions on business formalization (Floridi, Demena, and Wagner 2020). To the best of our knowledge, there are no meta-analyses investigating firm performance induced by formalization.

II. Methodology

Search and selection strategies

We searched Google Scholar, Scopus, and World Bank Knowledge Retrieve and employed forward and backward search to retrieve potential empirical studies. Searching for eligible studies was a challenging task as the formality and business performance literature is abundant. For instance, the keywords 'Benefit of formalization informal firms' in Google Scholar hit more than 55,000 results. Therefore, we split the queries into two main categories: formality and performance indicators. The formality indicators were formalization, registration, and licence. For the outcomes, we selected the most common performance indicators: revenues, profits, credit, input, and tax payment. We combine the two categories with 'AND' to obtain a narrower web search.

Two authors separately conducted the multiple searches (June 2018 to October 2019). We inspected English language studies reporting regression-based results, focusing on formalization impacts on business performances and comparing firms before and after switching formality status to non-switchers. We conducted a two-stage screening process: the first stage identified 47 studies based on screening titles, abstracts and conclusions, whilst the second stage excluded 27 studies after analysing the potential studies in detail. We excluded studies that do not focus on enterprises switching formality status, investigate treatment effects on the performance of informal enterprises, and/or do not employ regression analysis. Eventually, we selected a sample of 20 empirical studies. The list of papers included in the meta-analysis can be found in the references indicated with a star.

Meta-dataset

The analysis exploits a meta-dataset of 1,271 estimates from 20 studies. The average and median

number of estimates per study are 63.5 and 39, respectively. The oldest study is published in 2011, and the most recent in 2019. Thus, the empirical literature started recently investigating the effects of formalization. Specifically, 14 of the studies are from the period 2015–2019, indicating that this is an emerging topic fraught with mixed results and a steadily increasing evidence based.

We include 9 peer-reviewed and 11 unpublished studies. Eleven studies (704 estimates) assess policy-induced and 9 studies (567 estimates) self-induced formalization. Regarding performance indicators, roughly half the estimates capture revenues and sales (46%), followed by access to credit (16%), and access to inputs (9%). Other indicators are employment and tax payment. Table 1 provides a detailed description of the meta-dataset.

Table 1. Definition and descriptive statistics.

	Definition	Mean	Std. Dev.
Dependent variable			
Revenue	=1 if revenue	0.460	
Credit	=1 if access to credit	0.162	
Input	=1 if access to inputs	0.088	
Data-characteristics			
Years	Number of years of data	4.495	2.225
Explanatory	Number of explanatory variables	13.79	5.762
Observations	Logarithm of the number of observations	8.182	1.403
Micro-firm	=1 if micro firms	0.726	
Latin_America	=1 if Latin America (Asia reference)	0.188	
Africa	=1 if Africa	0.356	
Estimation-characteristics			
OLS	=1 if OLS estimation (random-effects, GMM, WLS, 2SLS and others reference)	0.378	
Fixed_effects	=1 if fixed effects estimation	0.236	
Year_FE	=1 if year fixed-effects	0.350	
Sector_FE	=1 if sector fixed-effects	0.380	
Market	=1 if market7location fixed-effects	0.498	
Randomized	=1 if randomized experiment	0.520	
Log-linear	=1 if log-linear specification	0.485	
Policy-intervention			
Policy	=1 if formalization induced by policy	0.555	
Information	=1 if intervention information shared with the firms	0.214	
Specification-characteristics			
Registration	=1 if formality measured as registration (reference other indicators)	0.550	
Licence	=1 if formality measured as licence	0.435	
Gender	=1 if owner's gender included	0.694	
Age	=1 if owner's age included	0.368	
Education	=1 if owner's education included	0.536	
Publication-characteristics			
Publication_year	Publication year (base, 2011)	7.753	2.550
Published	=1 if peer-reviewed	0.457	
Citations	Google Scholar citations per study age, January 2019 (Logarithm)	1.504	1.045
JIF	RePEc recursive journal impact factor	0.267	0.489

Empirical approach

We design the empirical approach in three steps. The first-stage presents arithmetic and weighted averages. We first apply partial correlation coefficients (PCC) to ensure comparison across the studies. We compute PCCs as:

$$PCC_{rs} = \frac{t_{rs}}{\sqrt{t^2_{rs} + df_{rs}}}$$

where PCC_{rs} represents the partial correlation coefficient between firms switching status (formalization) and performance indicators, r denotes the reported estimate from primary study s, t_{rs} and df are t-value and the regression's degrees of freedom.

The second-step uses visual inspection and bivariate MRA. The former uses funnel plots to visually inspect publication bias and the latter performs the Funnel Asymmetry Test (FAT) and Precise Estimates Test (PET) to investigate the regression-based publication bias and genuine effect.

The third-step uses a multivariate MRA exploring potential sources of heterogeneity. We use the General-to-specific (G-to-S) approach on the full sample and then analyse the two sub-samples, policy-induced and self-induced, separately. We estimate the multilevel mixed effects (MEM) model using precision as weight as it addresses both inter- and intra-study dependencies. We use Doucouliagos (2011) for interpreting the PCC results (small, medium, and large between 0.07 and 0.173, 0.173 and 0.327, and above 0.327, respectively).

III. Findings and discussion

Table 2 presents the arithmetic and weighted averages. The overall average effect greatly varies –

self-induced formalization has more than double the effect compared to policy-induced formalization. All averages are positive and statistically significant. However, we need to account potential sources of bias and heterogeneity. Figure 1 depicts two funnel plots, providing the first indication of publication bias. Close inspection seems to indicate slight asymmetries. Table 3 provides the related bivariate FAT-PET findings. We find very small and similar underlying effects and no systematic publication bias (though downward bias for policy-induced formalization). Thus, on average firms do not benefit from formalization.

To assess whether the bivariate FAT-PET results are influenced by study heterogeneity, Table 4 and Figure 2 present the multivariate MRA. The multivariate MRA (all-estimates) identifies a small underlying effect (0.140) and insignificant publication bias, suggesting formalization benefit firms by improving revenues and access to services. Though the effect is small, this finding supports the view of informality as an incubator for firms, with formalization benefits arising after a trial stage in the informal sector (Williams, Martinez–Perez, and Kedir 2017). Further analysing the two sub-samples with policy-induced and

Table 2. Average impact of formality on performance.

Method	Effect size	S.E.
Simple-average[a]		
All-estimates	0.024**	0.002
Policy-induced	0.014**	0.002
Self-induced	0.037**	0.003
Weighted-average[b]		
All-estimates	0.022**	0.001
Policy-induced	0.016**	0.002
Self-induced	0.036**	0.002

Note: [a] arithmetic mean of the PCC. [b] inverse variance as weight. ** indicates statistical significance at the 5 % level.
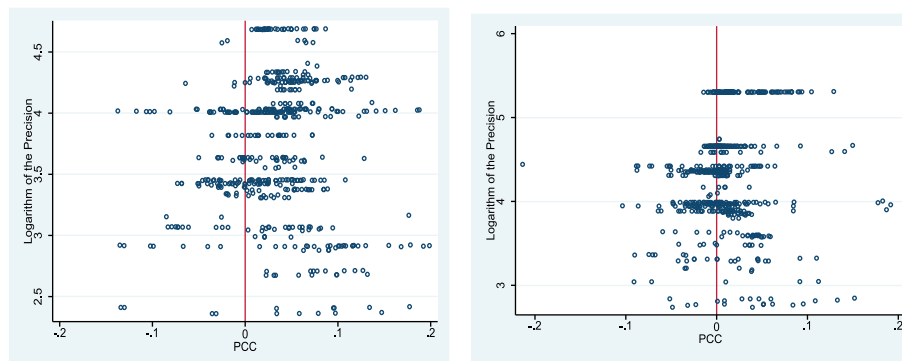
Figure 1. Funnel plots – Policy-induced (right, N = 707) and self-induced (left, N = 567).

**Table 3.** Bivariate MRA: Publication bias and genuine effect tests.

	All-estimates		Policy-induced		Self-induced	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Bias (FAT)	0.063	0.14	−0.891	−1.51	0.528	1.35
Genuine effect (PET)	0.020***	3.79	0.024***	3.91	0.029***	4.62
Observations	1,274		707		567	
Studies	20		11		9	

Note: *** indicates statistical significance at the 1 % level.

Table 4. Multivariate MRA.

	All-estimates		Policy-induced		Self-induced	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Bias (FAT)	−0.257	0.051	−18.729***	−5.12	−0.989	−1.17
Genuine effect (PET)	0.140**	2.73	1.643***	5.30	0.246**	2.48
Observations	1,274		707		567	
Studies	20		11		9	

Note: See Table 2. Results for the moderator variables are presented in Figure 2. *Note:* ***/** indicates statistical significance at the 1/5 % level, respectively.
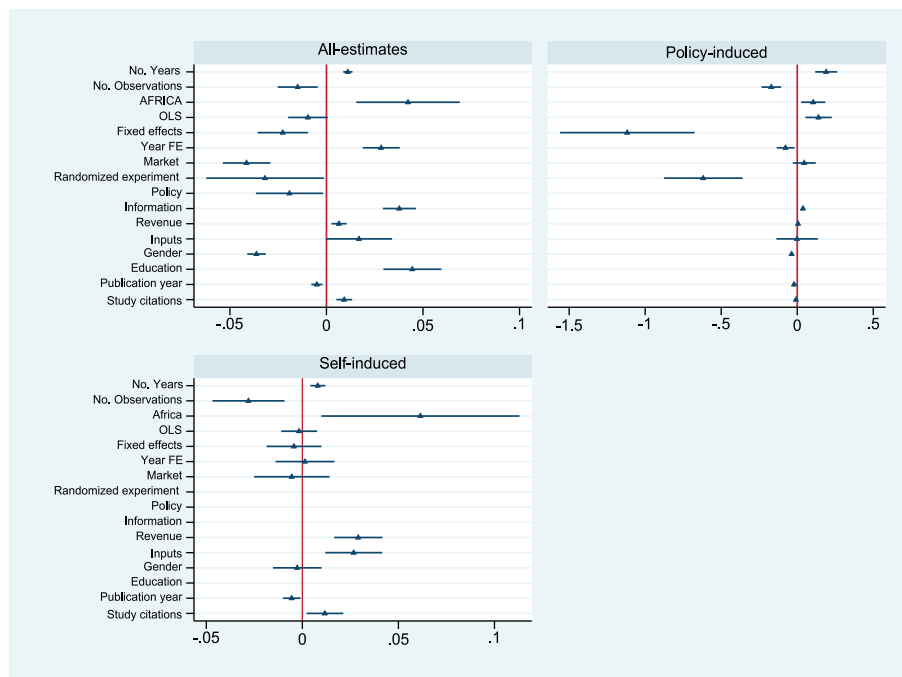
Figure 2. Multivariate MRA – Coefficients and 95% confidence intervals.

self-induced effects, policy reforms display a systematically larger PCC (1.643) and a substantial downward publication bias which is statistically significant; on the other hand, self-induced formalization results in medium effects (0.246) and negative albeit statistically insignificant bias. Thus, after accounting for study heterogeneity, policy-induced formalization seems to benefit the newly formalized firms.

Concerning drivers of heterogeneity (Figure 2), policies accompanied by information sessions seem more effective, indicating the importance of informational face-to-face meetings. Thus, formalization policies should be implemented with information sessions, trainings/workshops, and bank sessions if they want to effectively unleash the growth potential of newly formalized firms. Revenues appear the main channel through which

firms benefit from both policy-induced and self-induced formalizations. Additionally, self-induced formalization is associated with improved access to inputs.

Other sources of heterogeneity are common in both sub-samples (Figure 2). For instance, more years of data period results in better business performance, implying that time is needed for benefits to materialize as firms initially recover the immediate costs of formalization. Given that the majority of the policies (9 out of 11) cut the costs of registration, it is plausible that firms formalize due to the low extensive costs of switching status. However, they require time to overcome the intensive costs of formality, which are higher for less productive newly formalized firms (Ulyssea 2018). Larger samples detect lower effects, implying that increasing the study population decreases the detected benefits. This suggests that selection bias declines with larger samples and a better representation of the heterogenous informal enterprises

Although overall formalization only brings modest advantages to firms, the bright side of policy-induced formalization is that firm performance is further reinforced.

IV. Conclusions

Overall, we show that formalization brings small advantages to firms. Yet, effects need time to materialize which might be explained by the high intensive costs of formalization. After breaking the sample in two groups, the analysis reveals that policy-induced formalization is associated with high benefits whereas self-induced formalization with medium advantages. Particularly effective are those interventions accompanied by informational sessions. Policy strategies providing training and business services can generate more benefits compared to policies simply cutting the costs of formalization. Future research should investigate potential benefits for governments from providing such a comprehensive formalization framework.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Natascha Wagner http://orcid.org/0000-0003-0830-6429

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