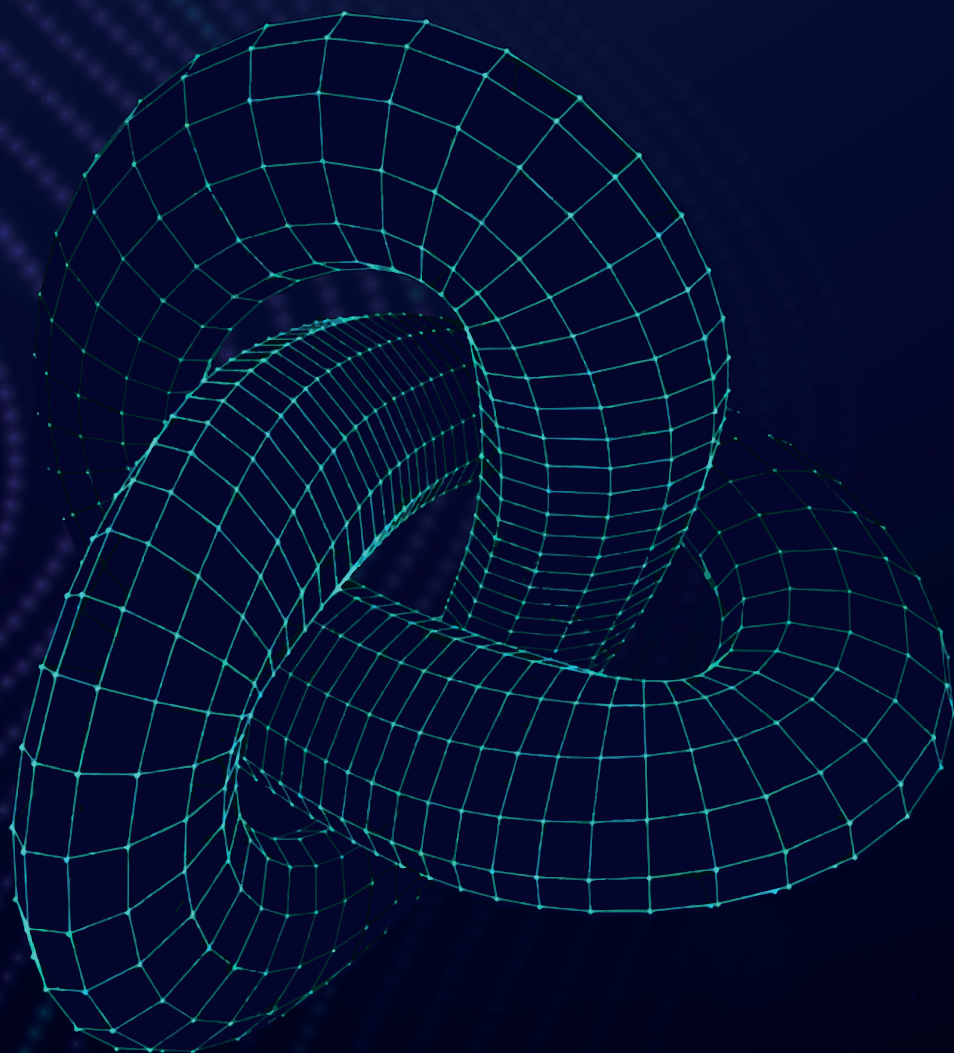# FIRMS NAVIGATING IN THE BORDERLAND BETWEEN FORMALITY AND INFORMALITY

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Firms Navigating in the Borderland Between Formality and Informality

Andrea Floridi

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Firms Navigating in the Borderland Between Formality and Informality

Ondernemingen die opereren op het grensgebied van formaliteit en informaliteit

Thesis

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Summary

The informal economy represents an important share of GDP and total employment in both the so-called developed and developing countries. Far from being either a panacea or a curse, the informal economy is a double-edged sword. On one hand it represents a source of livelihoods for lower income populations and it helps circumvent burdensome regulation. On the other hand, high shares of informal economy hinder economic growth and reduce government revenues, whilst they are associated with lower capital intensity, minor labour productivity and worse labour conditions.

The prevalence of the informal economy and its persistence over time has led policymakers to implement policies seeking the formalization of the informal economy. Formalization is typically seen as the remedy for boosting economic growth and improving labour conditions. Yet, the manifold efforts put in place by governments and policymakers are far from achieving the intended outcome of transitioning activities from the informal to the formal economy.

Since its first definition in the early 1970's, the concept of informal economy has been at the centre of a vivid academic debate. Over the years, a proliferation of studies contributed to advance a better understanding of the nature of informal activities. Whilst the literature agrees on describing the informal economy as a heterogeneous set of activities, still there is no consensus concerning the main drivers of formalization.

Set against this background, the research at hands puts forward new theoretical and analytical tools for studying informal entrepreneurship. To this extent, meta-analysis techniques are employed for systematically assessing the present evidence on the effects of policies promoting formalization and on the effects of formalization on business performance. Secondly, drawing on the ILO 2002 conceptual framework, the research adopts a new heuristic that goes beyond the dichotomist contraposition between formality and informality.

The manuscript is articulated in two parts. The first part (chapters 3 to 6) gathers empirical evidence for going beyond the discourse on informal firms' formalization, whilst the second half outlines a new approach that goes beyond the formal/informal dichotomy.

The first part takes stock of the empirical literature on business formalization and systematically analyse the existing evidence using meta-regression analysis techniques. This

part develops four chapters to explore the impact of interventions promoting business formalization on various formality indicators and the effects of formalization on several business performance indicators. The analysis identifies limited impact of formalization policies on business formalization and stresses the need for new policies (Chapter 3). Furthermore, the comparative meta-analysis indicates that experimental studies report higher impact compared to quasi-experimental studies, although the former reveal severe upward bias (Chapter 4).

The first part of the manuscript concludes by meta-analysing the effects of formalization on various business performance indicators as reported in the empirical literature. The findings indicate that overall formalization does not improve business performance (Chapter 5), and that policy-induced formalization is associated with higher benefits compared to self-induced formalization (Chapter 6). Taken together, the meta-analyses suggest that the limited effects of policy aiming at business formalization may be accounted for by the low benefits associated with business formalization.

Having established a gap concerning the reasons underpinning entrepreneurs' decision to formalize, the second part opens with a case study of Indonesian enterprises operating in three West Javanese cities (Chapter 7). The study presents the main self-reported reasons underpinning business registration and identifies higher political participation and improved civic engagement among the main characteristics of registered enterprises.

Following the Lakatosian notion of research program, the research then outlines the new approach and empirically tests the new heuristic using secondary data from 19 countries across the world (Chapter 8), and with a case study of Indonesian enterprises (Chapter 9). Central to the new approach are the concepts of '*borderland*' defined as the space of overlap between formality and informality, and '*trans-formal* firms' which are enterprises neither purely formal nor purely informal. The empirical tests indicate that the majority of the studied enterprises present traits of trans-formality. The studied trans-formal firms averagely represent the missing middle between informal lower-tier activities and formal upper-tier enterprises.

The manuscript concludes with a discussion of the main theoretical implications, insights for policy action and new paths for future researches.

Samenvatting

De informele economie vertegenwoordigt een belangrijk deel van het BBP en de totale werkgelegenheid in zowel de zogenaamde ontwikkelde als de ontwikkelingslanden. De informele economie is geen wondermiddel of een vloek, maar een tweesnijdend zwaard. Aan de ene kant is de informele economie een bron van inkomsten voor de lagere-inkomensgroepen en een manier om omslachtige regelgeving te omzeilen. Aan de andere kant belemmert een groot aandeel van de informele economie de economische groei en beperkt het de overheidsinkomsten. Ook gaat dit gepaard met een lagere kapitaalintensiteit, een lagere arbeidsproductiviteit en slechtere arbeidsomstandigheden.

Omdat de informele economie een wijdverspreid verschijnsel is dat al lang bestaat, hebben beleidsmakers maatregelen genomen om de informele economie te formaliseren. Formalisering wordt doorgaans gezien als middel om economische groei te stimuleren en arbeidsomstandigheden te verbeteren. De vele inspanningen van overheden en beleidsmakers hebben echter bij lange na niet het beoogde resultaat opgeleverd en activiteiten zijn onvoldoende overgegaan van de informele naar de formele economie.

Het begrip informele economie is sinds het begin jaren '70 werd gedefinieerd steeds onderwerp geweest van een levendig wetenschappelijk debat. In de loop der jaren is er veel onderzoek gedaan dat heeft geleid tot een beter begrip van de aard van informele activiteiten. Hoewel er in de literatuur overeenstemming bestaat over de omschrijving van de informele economie als een heterogeen geheel van activiteiten, bestaat er nog steeds geen consensus over de belangrijkste factoren die formalisering bevorderen.

Tegen deze achtergrond worden in dit onderzoek nieuwe theoretische en analytische instrumenten gepresenteerd voor het bestuderen van informeel ondernemerschap. Met behulp van meta-analyse worden de huidige onderzoeksresultaten met betrekking tot de effecten van beleidsmaatregelen ter bevordering van formalisering en de effecten van formalisering op bedrijfsprestaties systematisch beoordeeld. Ten tweede wordt in het onderzoek, op basis van het conceptuele kader van de IAO uit 2002, een nieuwe heuristiek gehanteerd die verder gaat dan de tweedeling tussen formaliteit en informaliteit.

Het proefschrift bestaat uit twee delen. In het eerste deel (hoofdstukken 3 tot en met 6) worden empirische gegevens verzameld om het discours over de formalisering van informele

bedrijven te ontstijgen. In het tweede deel wordt vervolgens een nieuwe benadering geschetst die verder gaat dan de tweedeling formeel-informeel.

Het eerste deel bevat een overzicht van de empirische literatuur over bedrijfsformalisering en een systematische analyse van de bestaande onderzoeksresultaten met behulp van meta-regressieanalysetechnieken. In vier hoofdstukken worden de invloed van maatregelen ter bevordering van bedrijfsformalisering op diverse formaliteitsindicatoren onderzocht en de effecten van formalisering op verschillende indicatoren van bedrijfsprestaties in kaart gebracht. Uit het onderzoek blijkt dat het effect van formaliseringsbeleid op de formalisering van bedrijven beperkt is en dat er behoefte is aan nieuw beleid (hoofdstuk 3). Verder blijkt uit de vergelijkende meta-analyse dat het effect in experimentele studies groter is dan in quasi-experimentele studies, hoewel de eerste een sterke opwaartse vertekening laten zien (hoofdstuk 4).

Het eerste deel van het proefschrift wordt afgesloten met een meta-analyse van de effecten van formalisering op verschillende indicatoren van bedrijfsprestaties uit de empirische literatuur. De resultaten wijzen erop dat formalisering over het geheel genomen niet leidt tot betere bedrijfsprestaties (hoofdstuk 5), en dat formalisering op grond van beleidsmaatregelen grotere voordelen heeft dan formalisering op eigen initiatief (hoofdstuk 6). Alles bij elkaar geven de meta-analyses aan dat de beperkte effecten van beleid gericht op bedrijfsformalisering mogelijk te verklaren zijn door de geringe voordelen van bedrijfsformalisering.

Omdat nog niet helemaal bekend is wat ondernemers doet besluiten om te formaliseren, begint het tweede deel met een casestudy van Indonesische ondernemingen in drie West-Javaanse steden (hoofdstuk 7). Hierin worden de belangrijkste door ondernemers zelf opgegeven redenen voor bedrijfsregistratie uiteengezet. Een grotere politieke participatie en een grotere maatschappelijke betrokkenheid blijken tot de belangrijkste kenmerken van geregistreerde ondernemingen te behoren.

Uitgaande van de ideeën van Lakatos over onderzoeksprogramma's wordt in dit onderzoek vervolgens de nieuwe benadering geschetst. De nieuwe heuristiek wordt empirisch getoetst op basis van secundaire data uit 19 landen verspreid over de wereld (hoofdstuk 8), en in een casestudy van Indonesische ondernemingen (hoofdstuk 9). Twee centrale begrippen in de nieuwe benadering zijn 'grensgebied', gedefinieerd als de ruimte waar formaliteit en

informaliteit elkaar overlappen, en 'transformele ondernemingen' (ondernemingen die noch zuiver formeel, noch zuiver informeel zijn). Uit het empirisch onderzoek blijkt dat de meeste van de onderzochte ondernemingen kenmerken van transformaliteit vertonen. De onderzochte transformele ondernemingen vertegenwoordigen gemiddeld het ontbrekende midden tussen informele activiteiten op lager niveau en formele ondernemingen op hoger niveau.

Het proefschrift besluit met een bespreking van de belangrijkste theoretische implicaties, inzichten voor beleidsmaatregelen en nieuwe wegen voor toekomstig onderzoek.

1. Introduction

Since first defined in the early 1970s by the ILO (1972) and by Keith Harth (1973), the informal sector and the informal economy have attracted the interest of academics and social scientist. However, only from the early 1990s the concept has taken central stage in the political debate. Initially, the informal sector was considered as the set of traditional activities likely to disappear through the modernization of the economy. Therefore, there were no specific policies implemented to strengthen the informal economy and informal agents. Contrary to predictions about its disappearance, the international trends show that informality has persisted all over the world throughout the last four decades in terms of contribution to GDP and to GVA (Schneider and Enste, 2000; Schneider et al., 2010; Schneider and Medina, 2019) and employment creation (Charmes, 2012).

Despite its importance, the informal economy is a double-edged sword. On the one hand, it helps circumvent burdensome regulation, it represents an alternative to unemployment, and it is the main source of livelihoods for people living in poverty; but, on the other hand, informal workers often suffer limited access to social protection and are less likely to receive social security payments and formal pensions.

The persistence of informal activities pushed governments and International Organizations to take measures for promoting the formalization of the informal economy across the globe (Sindzingre, 2006). Formalization is considered desirable because it is associated with economic growth, particularly with increased employment and higher labour productivity (De Soto, 1990; Porta and Shleifer, 2014; ILO, 2002; ILO and WIEGO, 2013; OECD, 2007; Andrews et al., 2011; USAID, 2005). But formalization is also valued in terms of development ethics, as informality is associated with avoiding regulations and evading taxation and therefore considered socially irresponsible (De Soto, 2003; Farrel, 2006; Schneider et al. 2010, Porta and Shleifer 2014). Formalization is advised as well since it is linked to improved labour conditions and better social protection. These features are considered to be weaker in the informal economy (ILO, 2013; ILO and WIEGO, 2013; Gatti et al., 2014).

To promote formalization, often policy actions aim at reforming the fiscal environment and simplifying business regulations and red tape, or at strengthening the enforcement of rules, and/or extending the social protection coverage. However, very often the impact of the

interventions paradoxically results in firms becoming even more wary of formality (Chen, 2005). Formalization policies are rooted in dichotomous models of the economy depicting informal entrepreneurs as conducting less productive survival activities and being less educated entrepreneurs, or as *'sly dogs'* who unethically cut the costs of regulation. In contrast, formal firms are portrayed as growth-oriented, more productive and run by more educated and more ethical entrepreneurs.

Given that context, it is no surprise that the 104th International Labour Conference-ILC, held in Geneva in June 2015, ended with an historical consensus resulting in the approval of the Recommendation 204, which led to a renewed emphasis on the formalization of economic activities, i.e. "the transition of workers and economic units from the informal to the formal economy" (International Labour Organization, 2015). The document conceptualizes firms according to a dichotomy between formal and informal enterprises. Although the International Labour Organization (ILO) in a 2002 report entitled *Women and Men in the Informal Economy* (ILO, 2002; ILO and WIEGO, 2013) had provided a new definition of the informal economy that suggested interactions between the informal and formal economy, those interaction were only considered in terms of employment relations. More precisely, the informal economy is defined as the set of informal activities and informal employment within the informal sector and outside the formal sector (ILO, 2002). By applying this definition, ILO conceptualizes informal enterprises as the basic unit of production of the informal sector. This implies that the ILO still applies the dichotomous contraposition between formal and informal enterprises.

This research project took a different approach. Building upon the concepts developed in the 2002 ILO report, this research offers a critical examination of the dichotomous models contraposing formal and informal enterprises. The research first assesses the effects of policies promoting business formalization and the effects of formalization on the performance of informal businesses switching formality status. The research then develops the concept of a 'borderland' as a space of overlap between formality and informality suggesting that firms that interact in the borderland are neither purely formal nor purely informal but 'trans-formal'. Lastly, the new heuristic is tested showing that most of the firms explored in the analysis exhibit 'trans-formal' characteristics.

1.1. The research project

The main question that the research aims at addressing is how firms navigate in the borderland between the formal and informal economy. The study particularly focuses on how firms exploit the ambiguity between formality and informality when conducting their businesses.

The main objective of the research is to identify new theoretical and analytical instruments for conducting studies on informal entrepreneurship (and on the informal economy) beyond the binary logic of dichotomist approaches. The objective is to develop a new approach that can be adopted in future research. Furthermore, the new classification can be used for elaborating new policies different from the systematic formalization of informal firms. This is particularly relevant given the persistence of the informal economy over time and considering that a massive formalization of all the informal economy would simply not be feasible due to the immense costs and time required as pointed out by Portes and Haller (2010).

To achieve the main objective, the research first systematically assesses the existing evidence on the effect of various policies promoting formalization and on the effect that formalization has on business performance. The first part of the manuscript employs meta-analysis techniques for exploring these two questions. This first stage is necessary to understand the existing empirical evidence about formalization efforts. It helps to address whether particular types of policy actions are more effective than others and whether informal firms gain benefits from formalizing their business.

The second part of the manuscript follows the logic of the Lakatosian research program (Lakatos, 1968). In this perspective, the study frames a test as a Lakatos' challenge: it develops a positive heuristic representing the core assumptions and test its analytical capacity compared to the dichotomist heuristic. This is achieved with secondary data about firms operating in 19 developing countries. The research then presents an application of the new approach to primary data from Indonesia. This application allows to further develop minor assumptions representing the negative heuristic. Far from being the end of a circular process, the research represents a first preparatory step for developing an approach that needs to be further enhanced by future studies following the iterative process typical of Lakatosian research programs (Lakatos, 1968).

1.2. Methodology

The main question of the research is exploring how firms navigate in the borderland between formality and informality.

The research followed eight steps to address the main question:

1. Assessing the effects of policy actions seeking business formalization
2. Exploring the effects of business formalization on business performance
3. Exploring other (non-economic) factors affecting business formalization
4. De-constructing the notion of formality and outlining a new approach
5. Testing the new approach with a large-scale dataset
6. Developing minor assumptions with one small primary dataset
7. Field work and data collection
8. Triangulation of findings

To address the main question, the research employs both primary and secondary data and uses different methods and technics. On the one hand, quantitative methods – such as descriptive statistics, regression analysis techniques, and meta-regression analyses – are employed to synthesize large amounts of data. Furthermore, given the innovative component represented by the new approach, it is key to empirically assess the relevance of the newly suggested classification. On the other hand, qualitative methods – such as policy analysis, informal interviews, direct observations during fieldwork, and focus group discussions – help gaining a deeper understanding of informality. Lastly, the mixed-methods approach allows integrating the quantitative findings with qualitative insights.

1.3. A narrative of the research structure

The study explores how firms navigate in the borderland between the formal and informal economy by addressing five sub-questions. The five sub-questions are as follows:

1. What are the effects of policy actions on business formalization?
2. Does formalization improve business performances?
3. What are the characteristics of unregistered enterprises and the reasons underpinning their preference toward business registration?
4. How can the formal/informal dichotomy be overcome?

5. What is the relevance of trans-formal firms within the informal sector (and the private sector) of developing and emerging economies?

The research project follows the format of an article-based manuscript. In other words, each chapter of the manuscript represents a stand-alone essay. At the same time, each essay contributes to the main question of the research.

Chapter 2 presents a literature review of the debate about informal firms with a particular focus on the conceptual models used for explaining the decision to engage with the informal economy. The first part of the essay consists of a summary of the historical debate around informal economy and informal enterprises. The second part of the chapter provides a taxonomy of the academic debate and links each approach to a political strategy. The analysis gives particular importance to the way each approach depicts informal entrepreneurs and to the suggested policy actions. The chapter concludes by placing the research within the existing approaches to informal economy.

After providing an overview of the debate in Chapter 2 and positioning the study within the ongoing debate on informal entrepreneurship, the manuscript develops along two parts. Part 1 *Beyond the discourse on (in)formality: evidence on enterprise formalization and on its effects on business performance* gathers and synthesizes existing evidence on the impact of policies seeking business formalization and on the actual benefits associated with business formalization. Part 2 *Overcoming the formal-informal dichotomy: toward a new approach* develops the new approach and assesses its heuristic capability.

Part 1 investigates two main aspects of formalization. Firstly, it explores the effects of policy interventions seeking to formalize informal firms. Second, it investigates the actual effects of formalization on business performance. To this end, this part includes four distinct essays using various meta-regression analysis techniques. The two initial essays focus on the effects of formalization interventions on informal firms' decision to operate formally. These meta-analyses are a timely exercise given the absence of studies systematically assessing the effects of those policies. Since formalization is the main political approach to informal enterprises, manifold efforts go into this type of policies. The two remaining essays explore another central feature in the debate about business formalization, namely whether formalization is associated with improved business performance. The two studies are particularly relevant since there is not much evidence in this regard. Additionally, as argued

by Maloney (2004) benefits associated with formalization are as important as the associated costs.

The first meta-analysis (Chapter 3) systematically compile the evidence-based literature on interventions aiming at formalizing informal firms. The findings show that, on average, formalization interventions have limited effects on firms' decision to formalize. Although the average impact is limited, initiatives based on increasing the benefits of formalization have a higher effect compared to the other considered strategies: cost reduction and enforcement. Yet, the detected modest average effect across studies raises doubts about the actual effectiveness of the current policy interventions that aim to increase formalization. The study has been published by Labour Economics (see Floridi et al., 2020).

This first meta-analysis is followed, in Chapter 4, by a short comparative meta-analysis of the effects of universal policies studied with quasi-experimental design vis-à-vis randomized controlled trials (RCTs). The study takes advantage of the heterogeneity of study designs for identifying specific sources of bias affecting respectively non-experimental studies and RCTs and shows that the latter are more subject to publication bias despite being considered the gold standard in terms of design.

Given the limited average effects detected in the previous studies when it comes to induced formalization, the third essay (Chapter 5) explores whether formalization improves business performance. To this extent, another meta-analysis is conducted. This meta-analysis looks at the empirical literature on business performance of informal businesses that switch formality status. The analysis reveals that the benefits associated with formalization are modest, implying that formalization is not attractive for those firms that formalize with a view to possible performance gains.

Chapter 6 concludes Part 1 with a meta-analysis of the effects of policy-induced versus self-induced formalization on business performance. The main finding of the analysis is that policy-induced formalization efforts are more likely to generate positive effects on business performance compared to self-induced formalization. The study has been published by Applied Economics Letters (see Floridi et al., 2021).

Summing up, Part 1 shows that the average effect of policies seeking formalization is modest; and that informal firms switching their operations from informal to formal receive fairly low

benefits from doing so. In addition, the essays highlight the need to further explore the rationale underpinning business formalization.

Part 2, *Overcoming the formal-informal dichotomy: toward a new approach*, has two main purposes. First, it addresses the identified theoretical gap by investigating characteristics of unregistered firms and disentangling their interest in and reasons for business registration. The analysis is conducted maintaining the dualism between registered and unregistered firms. Thus, the analysis focuses on one dimension of business formality, namely business registration. After addressing the theoretical gap, Part 2 outlines a new approach to informality and empirically assesses its heuristic capability.

The fifth essay (Chapter 7), reports on a case study of entrepreneurs operating in West Java, Indonesia. The essay intends to provide a deeper understanding of the decisions underpinning business registration. The analysis relies on information collected from 400 interviews conducted between July 2016 and August 2017. In addition, the study incorporates the analysis of in-depth interviews and focus group discussions conducted during fieldwork. The quantitative and qualitative findings are combined in a mixed methods approach. The findings indicate that unregistered enterprises are penalized in terms of limited policy participation and civic engagement (official trade unions membership). In turn, they exploit informal networks for coping with institutional gaps and accessing markets and services.

The sixth essay (Chapter 8) outlines a new approach to informality based on the notions of borderland and trans-formal firms (Floridi et al. 2016). The essay considers both concepts within a broader institutional setting and assesses the new approach using secondary data about firms in 19 developing countries. The analysis exploits information from the World Bank Informal Enterprise Survey (WBIES). The results support the prominence of trans-formal firms and corroborate the new approach. Furthermore, they reveal that trans-formal firms display higher revenues, employ more workers, and are run by more educated entrepreneurs compared to their informal counterparts.

The seventh and last essay (Chapter 9) aims at providing a deeper understanding of trans-formal entrepreneurship with a case study of firms operating in West Java. The analysis exploits the same cross-sectional dataset of 400 enterprises. While Chapter 7 develops the argument using a dichotomist classification of registered and unregistered firms, this essay

embraces the new definitions of borderland and trans-formal firms to further corroborate the new approach.

The manuscript concludes with Chapter 10 where policy implications, the main limitations of the research, and pathways for future research are discussed.

2. Literature review: informal entrepreneurship across schools and implications for policy making

This chapter presents an overview of the literature on the informal economy with particular focus on informal enterprises. The chapter is divided into four sections: the first part provides a historical overview of the informal economy since the 1960s until today. This section focuses on the rise and associated developments of informal activities worldwide with a particular attention to the structural changes that led to the emergence of new forms of the informal economy. At the same time, the analysis pays attention to parallel developments in the theoretical debate and the evolution of new approaches in the literature.

The second section provides a taxonomy of the debate on informal economy and identifies the main approaches to informal entrepreneurship. This section also introduces the definition of informal economy and informal entrepreneurship according to each approach. The review focuses on how each approach portraits informal entrepreneurs and on the corresponding policy implications. The objective of this section is to provide a framework for understanding the theoretical underpinnings of policies and actions aiming to change the informal economy and to provide examples where the respective polices have found application.

The third section briefly explains the two notions of borderland and trans-formal firms, which are at the centre of the new approach introduced in the thesis. After outlining this approach, its position within the wide spectrum of approaches to informality is considered.

The chapter concludes by stressing the need to systematically assemble, present and assess the evidence on formalization policies so as to further disentangle the formal vs informal dichotomy.

2.1. Historical context of the debate

The concept of informal economy is commonly attributed to Keith Hart (1973), who adopted it in the context of a study on income-generating activities of the urban proletariat in Accra, Ghana. Hart used the term informal economy referring to those unreported activities generating income for poor people. Since then, the concept of informal economy has attracted the interest of many scholars. Even though most authors initially believed that the informal

economy would disappear over time, informal economic activities have been constantly on the rise all across the world in the past 40 years.

Far from being a static phenomenon, the informal economy has evolved over time, and many different types of informal activities have flourished across the globe. Parallel to the rising and spreading of the informal economy, an academic debate has developed with manifold attempts to theorize and explain the phenomenon. The literature offers a variety of approaches, definitions, and conceptualizations of informality. However, there is nowadays widespread agreement that the informal economy is persistent and not just a transitory phenomenon. It is also acknowledged widely that the informal economy is found worldwide and not only in low- and middle-income countries. It is an umbrella category under which a large set of heterogeneous activities are collected, including, but not restricted to, survival activities. The following sections briefly summarize the rise and spread of informal activities from the 1960s until today, as well as the parallel academic debate.

1960s and 70s: Rising of the urban informal sector and the dualist models

After decolonization, considerable changes were witnessed in the societies and economies of countries in Africa, Asia, and Latin America. In the 1960s and 1970s, there was a shift from resource extraction and an agriculture-based economy towards modernization and industrialization of the economy. Many Latin American countries, inspired by the United Nation Economic Commission for Latin America (ECLA), started implementing import substitution policies (Safa, 1986). Similarly, several Asian countries started implementing policies supporting export processing industries during the 1960s (Safa, 1986). In Africa, various countries changed the structure of their economy, shifting from economies based on the extraction of resources to economies based on industries and infrastructure.

The transformation of the economy and the resulting changes in rural areas accelerated the process of urbanization, increasing urban unemployment. The Fordist transformation of the countryside resulted in a large workforce moving to urban areas attracted by the perspective of finding employment. However, the unexpectedly fast process of urbanization found many cities unprepared for absorbing such large increases in the population. Consequently, this process created many problems, among which urban unemployment was a key challenge.

The path of economic development and the radical changes observed in society led many scholars to criticize and revise models such as Lewis' (1954) and Harris-Todaro' (1970).

Lewis' model provided the theoretical tools for explaining the process through which modernization of the economy is expected to crowd-out traditional (informal) activities replacing them with modern (formal) activities. Harris-Todaro's model explains that the main determinant of urbanization (and urban unemployment) is constituted by the gap between rural wages and expected urban wages. The latter are higher, and therefore attract the workforce to the cities; the model assumes full employment in the rural sector and depicts unemployment in the urban sector as effect of the labour surplus.

One of the main criticisms against the Harris Todaro model is that it does not consider unemployment in the countryside. Several authors argue that the transformation of the rural areas created unemployment by reducing the work mobility within the rural sector (Tokman, 1978). Many scholars criticize Harris-Todaro's assumption of full employment in the rural sector and point to the labour surplus in the countryside: rather than higher wages in the cities, the main reason that causes many people to move to the cities is the lack of wage opportunities in agriculture and the high rural unemployment (Safa, 1986; Tokman, 1992). Singer and Jolly (1973) argue that demographic growth and urbanization lead to increasing unemployment. The Singer model shows that there is unemployment in both the rural and urban sector. This unemployment is structural within the capitalist transformation of the economy. More importantly, the unwaged workers enter the informal sector by performing casual and occasional work. Other authors stress the role of the expropriation of land and demographic policies in spurring the urbanization process (Safa, 1986).

The rise of urban unemployment pushed scholars to further investigating the phenomenon. In 1972 the anthropologist Keith Hart conducted research on urban unemployment in Ghana. Hart found that, far from being an economically inactive population, many unemployed workers were adopting various strategies for coping with poverty and ensuring their livelihoods; these strategies ranged from the illegal production of alcohol to smuggling, from occasional work to street vending. Hart noticed that all these activities had the common feature of being unreported and classified them as informal economy.

The concept of informal economy introduced by Hart constituted the theoretical framework for a study conducted by the International Labour Organization (ILO) in Kenya in 1972 (ILO 1972). The study stresses the importance of development policies targeting the informal economy; informal activities are strategies for creating income and coping with poverty and unemployment. Both Hart's study and the one conducted by the ILO focus on the links

between informal activities, unemployment, and poverty. Both studies argue that policies should support the coping strategies observed. These studies on the informal economy focused on the urban labour surplus and conceived informal activities as a set of strategies for ensuring the livelihoods of poor people living in the cities. This view is often referred to as the dualist approach, since it replaces the traditional versus modern dichotomy with a new one opposing formal versus informal activities. The formal economy is considered as more productive and capital intensive, while informal activities are low-productive and labour intensive. Dualists tend to describe the informal economy as a phenomenon specific to so-called developing countries. The informal economy is transitory, separate from the formal economy, and affects mostly low-income populations in urban areas.

New-Marxist scholars, often referred to as structuralists criticized the assumptions of temporariness and isolation of the informal economy (Moser, 1978; Portes and Sassen-Koob, 1987; Portes et al., 1989; Rakowski, 1994). These authors questioned the transitory nature of informal activities arguing that they are necessary to the functioning of the capitalist system. Hence, the informal sector expands with the capitalist system, especially in times of crisis. Structuralist scholars stressed as well the existence of frequent interactions between thee informal and the formal sector: the former provides cheap labour, goods and services to the latter in a system of asymmetric and non-equalitarian relations.

1980s and 1990s: Legalist versus New Marxist approach

The 1980s witnessed the emergence of the neo-liberal paradigm. Liberalization of the markets, privatization of former public activities and structural adjustments were the basic ingredients of economic policies implemented all over the world, promoted by the so-called Washington Consensus (Biles, 2009). During that decade, the informal economy kept on growing worldwide. This phenomenon was also observed in unexpected places, such as in developed countries (Williams and Round, 2007).

Indeed, the significant reduction of government interventions along with the deregulation of the markets led to the expansion of post-Fordist models of production (Basile and Cecchi, 2001) based on small scale, decentralized, and more flexible economic units of production (Chen, 2012). In addition, the privatization of former public enterprises further reduced the role of governments, making the private sector the main source of employment in many countries. The changes in the economic system favoured the development of self-

employment, informal employment, and informal relations; and the reduction of government interventions represented a fertile soil for the development of informal activities and less regulated jobs.

During the 1990s, globalization and the expansion of global value chains further accelerated the ongoing economic transformation fostering the rise of informal activities. Many countries attracted foreign capital and international corporations started outsourcing the production in regions where costs of production were lower. Large companies outsourced the production to smaller businesses, very often with informal transactions. Other formal companies started conducting part of their business informally, for example by hiring part of their workforce informally or illegally. At the same time, many micro and small businesses started engaging with larger companies through networks of informal relations; other enterprises engaged with informality for being competitive and being able to sell products to larger companies. Hence, informality became a requirement for being able to trade with the large companies that lead the value chain.

Overall, the informal economy continued growing during the 1980s and 1990s, demonstrating the incapacity of neoliberal policies to address the problem of the informal economy (Biles, 2009). The changes in the economy led to the spread of informal activities also in Western Europe and North America. In addition to these changes, the economic crisis in Latina America in the 1980s and in Asia in the 1990s contributed to increasing unemployment and expanding the informal economy. Similarly, the transition from a planned economy to a market economy in many ex-Soviet countries is associated with the rising of unemployment and informal activities.

Whilst the earlier debate focused on wages and the internal economic divide, the academic debate in the last two decades of the 20th Century shifted towards regulation, the legal framework and the legal nature of informal activities (Tokman, 1992). Two main positions were featured in the debate at this stage: the new-Marxist (or structuralist) position that focuses on social protection and labour rights, and the neoliberal (or legalist) approach that focuses on regulation, red tape and taxes.

The two approaches strongly diverge in explaining the determinants of informality. On the one side, structuralist scholars argue that the informal sector is functional for the formal sector. The former provides cheap workforce, goods and services to the latter. The informal

sector is strategic for cutting the costs of legality to ensure the competitive advantage of the economy. On the other side, the legalist approach considers the informal economy an outcome of the heavy bureaucratic machine and the high costs of regulation. The main contributor to this school is Hernando De Soto, a Peruvian sociologist and author of *The other path* (1990). De Soto argues that informal activities have a potential for contributing to growth but are held back by regulation costs. The two approaches diverge as well in terms of the object of the analysis: legalist authors commonly analyse informal enterprises, while most structuralist scholars focus on informal employment.

The debate between structuralist and legalist scholars during the 1990s led to the formulation of a new approach that aimed at reconciling the two schools of thought by looking at both the enterprise and employment side. The school is referred to as the continuum approach and suggests that the formal and informal economy interact very often and that there is informal employment in the formal sector. The approach argues that the informal economy is a continuum of activities that are heterogeneous in their characteristics.

It is important to emphasize that, in the early 1990s, the informal economy took central stage in debates on policy and economic statistics. The increasing importance of the informal economy caught the attention of policymakers that were interested in representations and analyses that would enable the design of more appropriate economic policies. Therefore, in 1993, the United Nations System of National Accounts-UNSNA 1993 (hereafter referred to as SNA 93) adopted a new definition of the informal sector and proposed measurement methods in order to facilitate the comparison between different countries. SNA 93 defines the informal sector as the set of unincorporated enterprises that operate at a small scale, with low level of organization and no clear separation between labour and capital (OECD and ILO, 2002); and describes informal activities as household businesses that are either unregistered or have less than a pre-specified number of employees.

One criticism of this attempt to measure the informal economy is that the informal sector is defined merely as part of the broader household economy and there is no clear distinction between family business and informal enterprises. Besides, the suggested definition neglects the interactions between the formal and informal sector and does not consider informal employment within the formal sector (Hussmanns, 2004).

In the late 1990s, the criticism against the so-called enterprise-approach adopted by SNA 93 led to the introduction of a new understanding of the informal economy formulated by ILO and WIEGO (Chen et al., 2002) in the report *Women and men in the informal economy. A statistical picture*. The document defines informal economy as the set of informal sector and informal employment inside and outside the informal sector. Informal sector refers to the set of informal enterprises. Informal employment inside the informal sector refers to "employers, employees, own account operators, and unpaid family workers in informal enterprises" (Chen et al., 2002). Informal employment within the formal sector includes "domestic workers, casual or day labourers, temporary or part-time workers, industrial outworkers (including homeworkers), and unregistered or undeclared workers" (Chen et al., 2002).

The increasing importance of the informal economy in the 1990s also led to the development of new techniques for estimating the size of the informal economy. Consequently, there was a proliferation of attempts at estimating the size of the informal economy using different methods and different proxies. Schneider and Enste (2000) provide a comprehensive review of the debate around the size and determinants of the informal economy, and they propose a unique approach for estimating the size of the informal economy of 110 countries for which the necessary data could be retrieved: the so-called DYMIMIC (dynamic multiple-indicators multiple-causes) method. The technique consists of combining different indicators of informality for obtaining a range of the size of the phenomenon.

2000s: Informal economy – a variety of approaches

The two decades opening the new millennium saw the rising of "informal activities in new guises and in unexpected places" (Chen, 2012). In addition, the economic crisis of 2008/09 had the double effect of increasing the size of the informal economy and impoverishing many informal enterprises and informal workers (Horn, 2009). The crisis hit many businesses so hard that they had to close down their activities, while others cut the costs of production by reducing the amount of employed labour or substituting the formal workforce with totally or partially informal workforce. Many unemployed workers became either informal entrepreneurs, self-employees or informal workers. Another factor contributing to the spread of new informal activities has been the so-called 'precarization' of working relations; that is, the increasing use of fixed-term contracts and part-time jobs. The precarious condition of many workers and the partial, or temporary, contractual relations force many workers to look for complementary sources of income that are very often informal. For instance, many

workers informally perform extra hours within the same company where they are officially employed without being (properly) paid; others find informal part-time jobs that allow them to increase their disposable income; yet others open informal businesses that they run with the expectation of becoming more independent in case their business idea proves to be successful.

Additionally, informal works and services are increasing also in high income countries due to structural changes such as the rise of the 'gig' economy (Webb A. et al., 2020). The 'gig' economy facilitates matching between providers and customers and involves the sale of goods and services and the exchange of labour for money between individuals or companies via digital platforms. In this respect, the 'gig' economy contributes to the spread of precarious contractual relations and on a task basis.

Furthermore, the recent global pandemic outbreak of SARS-Cov-2 (Covid-19) has severely hit informal workers and informal entrepreneurs (Schwettmann, 2020; Chen et al., 2021). Restrictive measures taken by governments such as lockdowns, travel bans and temporary business closures reduced the business opportunities of many informal enterprises. The higher exposure to Covid-19 due to the lack of appropriate protection and living conditions, often in overcrowded places, makes them more vulnerable to contracting Covid-19 (Schwettmann, 2020). Informal workers are usually not covered by formal social protection schemes and receive less support by governments (Webb A. et al., 2020). Overall, the scarcity of qualitative and quantitative evidence does not allow yet to estimate the full effects of Covid-19 on the informal economy; nonetheless, pioneering studies show that the pandemic had large negative effects on work and earnings in the informal economy (Schwetterman et al., 2020; Chen et al., 2021).

The recognized importance of the informal economy and its recent increase due to various crises renewed the interest of scholars on this topic. Recently, the focus of the debate shifted from regulatory frameworks to institutions and social relations (Biles, 2009). Some scholars focus on the links between the formal and informal economy (Guha-Khasnobis et al., 2007; Chen, 2005); others, on the role of networks and relations (Williams, 2004; Hillenkamp et al., 2013). The hegemonic discourse on the informal economy has been questioned and a different interpretation of the path of economic development and of the role of informal activities have been proposed (Gibson-Graham, 2000; Escobar, 2001; Williams, 2009).

As Chen (2012) suggests, studies about the informal economy represent a discipline in itself, and scholars coming from different social sciences contribute to inform the debate. There is agreement concerning the spread of the informal economy all over the world and many authors acknowledge that the formal and informal economy interact. There is also consensus concerning the heterogeneous nature of the informal economy; yet, there is no agreement concerning the determinants and consequences of informality. Many competing approaches feed into the current debate: legalist (De Soto, 1990; 2003), voluntarist (Maloney, 2004; Perry et al., 2007), parasite (Farrell, 2004; 2006), new dualist (Porta and Shleifer, 2008; 2014), continuum (Chen et al., 2002; Guha-Khasnobis et al., 2007), Polanyian (Hillenkamp et al., 2013), and post-structuralist approaches (Williams and Round, 2007; Williams, 2009; Cross, 2000; Williams and Nadin, 2010; Williams et al., 2013; Williams and Shahid, 2016). The next section describes in more depth each approach with a particular focus on informal enterprises and policy suggestions resulting from each approach.

2.2. Engaging with in-formality: a review of the debate about firms' decision-making concerning formalization

The debate about formalization is characterized by a wide range of positions. Without claiming exhaustiveness, nine main approaches to the study of informal entrepreneurship were identified (see Table 1). Each approach affects and shapes policies and interventions addressed to the informal economy differently. The following review focuses on how each approach depicts informal entrepreneurs and on the derived policy implications. The examples of interventions provided hereafter are meant to illustrate practical cases of programs inspired by the respective approaches; they should not be interpreted as suggesting that there are approaches or actions that are more effective or more valid than others. Therefore, the following is not a collection of best practices but rather a review of examples of specific interventions that have not necessarily always achieved their intended outcome.

Dualist approach: Dual economy model

The dual economy model belongs to the frame of the dualist approach (Porta and Shleifer 2008, 2014; Rauch, 1991; De Paula and Scheinkman, 2007). The dualist model depicts the informal economy as the set of traditional activities outside the modern formal capitalist sector and argues that the informal economy is likely to disappear as a consequence of modernization (Hart, 1973; ILO, 1972). This approach is intimately connected with

modernization theory and with models presented by Rostow (1971), Lewis (1954), Harris-Todaro (1970) and, more recently, Rauch (1991). The dualist approach argues that the economic system consists of two separated segments: the formal and the informal economy. The informal economy is the set of survivalist activities marginal to the formal sector. The two sectors are almost entirely isolated from each other, and the linkages between the formal and the informal economy are sporadic.

According to the dualist approach, informal firms differ from formal ones in terms of characteristics. Generally, informal firms are considered to have low productivity and employ low levels of human capital. Informal entrepreneurs and informal workers are considered to be generally less educated than formal ones (Porta and Shleifer 2008, Rauch 1991). Formal and informal activities operate in different segments of the economy. Hence, informal firms do not threaten formal firms and they do not create unfair competition.

The model proposes a sort of 'Walmart theory of development' (Porta and Shleifer 2008). In short, development comes from formal firms crowding out and replacing smaller and less productive informal firms. The latter are likely to disappear trough a Schumpeterian process of creative destruction (Schumpeter 1950). Therefore, the political solution to the informal economy is economic growth since the former is believed to decline with increasing incomes and wages. The main idea is to let the informal economy disappear with development; hence the name: *laissez-faire* policies.

The resulting policies are straightforward: since the informal economy is a source of livelihood for billions of poor people, governments should avoid taxing informal survival activities. Indeed, increasing costs of informality might have fatal results for many survival activities representing the only source of income for the poorest segment of the population (Porta and Shleifer 2008). Based on these considerations, governments should focus on promoting poverty alleviation interventions, such as microcredit programs. Moreover, reducing taxation for informal firms can also reduce constrains for formalizing business.

Concomitantly, policies focusing on formal firms aim at increasing the benefits as well as decreasing the costs of formalization. Governments might increase the benefits of formalization by improving the entrepreneurs' access to infrastructures and services. For instance, improving access to electricity, transport systems and other infrastructure might improve firm performance. Similarly, improving access to credit and to business

development services for small formal firms might motivate growth-oriented informal firms to formalize. Administrations can reduce the costs of formalization by reducing the costs of registration and the tax burden for formal firms.

In brief, *laissez-faire* policies basically do not envision any interventions for the informal enterprises but rather focus on formal enterprises (Williams, 2016). There is no rigorous evaluation assessing the outcomes of such policies. Nonetheless, there is widespread agreement concerning the fact that the negative impact outweighs the possible positive impact (Williams, 2016). Particularly, *laissez-faire* policies might (i) penalize formal enterprises (due to the unfair competition), (ii) damage informal enterprises that are exposed to exploitative relations with both the formal and the informal economy, (iii) reduce consumer protection and (iv) cut the public revenues of governments (Williams, 2016).

Structuralism: Subordination model

Structuralism views the informal economy as a by-product of capitalism, an outcome of the historical path of the capitalist economic development. The informal economy is seen as essential to the functioning of the formal economy: informal firms and workers are subordinate to the interest of larger formal enterprises and they serve to reduce costs of input and production (Moser, 1978; Portes et al., 1989). Informal labour represents a pool of cheap workforce which the formal economy can draw on; informal firms are suppliers of cheap goods and services, and they often exchange goods and services with formal firms (Fernández-Kelly and Shefner, 2006).

Within this approach, informal firms are usually described as a heterogeneous set of activities (Portes et al., 1989; Portes and Haller, 2010). Portes (1989) identified at least three main types of informal activities: (i) survivalist, (ii) dependent, and (iii) growth oriented. Survival activities ensure the livelihoods of the poorest people, formal firms might cut costs by hiring informal employment and yet other firms stay informal to avoid the costs of registration and keep the costs of production low.

Policies should aim at regulating commercial and employment relationship between large formal businesses and informal firms and workers. In other words, the suggested remedy is to regulate or increase regulation of those parts of the economy that are unregulated or under-regulated. However, rather than increasing the number of rules and regulations, governments

should aim at improving the quality of such rules and the effectiveness of their implementation (Centeno and Portes, 2006).

Governments can promote formalization of firms by simplifying the regulatory environment, reducing taxes and formalization costs, and increasing benefits for paying taxes and formalization (Chen, 2012; Williams et al., 2013). Concomitantly, regulation is expected to deter employers from hiring workers informally, and encourage firms to contribute to health coverage, pensions, and other benefits for their workers (Chen, 2012).

Thus, the structuralist approach suggests focusing on the quality of the rules and regulations. Neither over-regulation nor de-regulation or a complete lack of regulation triggers a decline of the informal economy (Chen, 2005). Therefore, the solution is not to make new rules or to get rid of the old rules but rather improving their quality and the related enforcement mechanisms.

The political challenge for this type of actions (here referred as *stick and carrot* policies) is to increase the benefits of formalization while concurrently increasing the enforcement of the rules (Centeno and Portes, 2006). The term *stick and carrot* refers to an old dictum that says that to train a horse one needs both a carrot for rewarding it, and a stick for punishing it. In other words, structuralists suggest combining rewarding and punishing interventions. On the one hand, increasing the number of officers and their wages might reduce corruption and increase the level of enforcement. On the other hand, implementation of welfare policies and improvement of social protection might increase the benefits of formality.

An example of *stick and carrot* policies is the Start and Improve Your Business (SIYB) program implemented by ILO. The program wants to concomitantly promote business formalization and stimulate the creation of decent work for all. SIYB has been implemented since the early 1990s with the objective of promoting decent job creation and supporting entrepreneurship. SIYB is a business management training program with a focus on starting and improving businesses as a strategy for creating more and better employment for men and women. The program wants to achieve the target of creating new enterprises and jobs by delivering training services to potential entrepreneurs for improving their managerial skills (Majurin, 2014). The program is delivered in four training packages to help creating, setting up, and improving the business. The declared target population of the program are individuals operating in the informal economy. However, it also targets unemployed individuals since

they are at risk of engaging in undeclared work. SIYB conducts initiatives in more than 100 countries collaborating with about 3,340 partner organizations. In the period 1990-2015 the program helped creating more than 9 million jobs and led to the start-up of at least 2.65 million of new businesses and the expansion of 40% of the existing business (van Lieshout and Mehtah, 2017).

Another example is the Italian Law 383/2001 that introduced a temporary tax break for informal entrepreneurs willing to register. In place between 2001 and 2003, the Law 383/2001 aimed at helping unregistered firms to move to the formal sector during a grace period of three years. Informal entrepreneurs who decided to register could retroactively pay taxes and contribute to costs of social protection at a low marginal tax rate. Additionally, newly registered firms would benefit from a tax amnesty that further lowered the costs related to the process of regularization. The outcomes of the Law were below the Government's expectation: in 2002, which was the first and most successful year, only 800 entrepreneurs submitted their application (Marchese, 2015). The main reason of the limited impact of the Law 383/2001 was that many entrepreneurs feared the enterprise would not be able to survive after the three subsidized years. The concern was that once they do not benefit from the tax amnesty anymore, they would become the target of future inspections (Marchese, 2015).

Legalist approach: Exclusion model

The exclusion model has its roots in the legalist framework. It argues that the high costs of formalization and the complex regulations prevent many firms from engaging with the formal sector. The focus is mostly on the bureaucracy, the regulatory framework, and property rights (De Soto 1990, 2003). In this school of thought the informal economy is not seen as subordinate to the formal economy but as excluded.

The informal economy is considered to be an expression of true market forces. It shows how the formal economy would work if it was unregulated. Most of the informal activities are similar to the formal counterpart in terms of characteristics, although they are kept down by policy. According to this romantic vision of the informal economy, informal enterprises are activities with a potential for upgrading but held back by government regulation and the fiscal burden (De Soto, 1990).

Authors adopting a legalist approach argue that firms operate informally due to the high cost of formalization and regulation. Firms that want to formalize need to cover the costs of

registration and others resulting from taxes and administrative procedures. At the same time, informal entrepreneurs face several disadvantages for operating informally, such as less advertisement, payment of bribes, inability to enforce property rights and unofficial contract systems. When the costs of formalization are higher than the costs of staying informal, enterprises prefer to operate informally.

Policies inspired by this approach aim at stimulating the formalization of firms by reducing the costs of formalization, such as registration costs, the time and number of procedures required for registering, and the amount of taxes to be paid. At the macroeconomic level, governments implement de-regulation policies to simplify the bureaucratic apparatus and extend legal property rights to convert the assets of informal firms into real capital.

According to the legalist view, governments have a limited influence on the informal economy as it operates outside the legal framework. Therefore, the legalist approach raises awareness that rather than focusing on oppressing informal activities by increasing the amount of rules, policies should aim at lowering the costs of formalization. A high rate of informality is seen as the outcome of over-regulation and high registration costs. The legalist approach focuses much on procedural aspects such as reducing the documents and procedures necessary to register an enterprise. Finally, facilitation policies propose a reduction of the tax burden in order to decrease the long-term costs of formalization.

These policies represent the majority of the reforms implemented. They represent 20% of the reforms monitored and collected by the World Bank Doing Business Program in the period 2008 to 2017. In total, 556 reforms have been implemented in 176 countries (only 14 countries did not implement such reforms), showing that the great majority of the countries see reducing the costs of registration as a priority for improving formalization.

An example of such a policy is the one-stop-shop (OSS) program sponsored by governments and international cooperation actors such as the World Bank. Such polices were implemented worldwide in the last two decades. The aim of OSS is to reduce the time and costs of registration by reducing the number of steps necessary for registering. OSS are local government offices that consolidate in one location all the units that were formerly located in different departments. OSS have been successful in reducing the time of registration but did not achieve the objective of increasing formalization (Bruhn and McKenzie 2013).

One example of an OSS is *Pelayanan Terpadu Satu Pintu* (PSTP), implemented in several districts of Indonesia since 2001 and promoted by the Central Government in 2006 with a ministerial decree (Minister of Home Affairs; Regulation Number 24). After the ministerial decree, the program expanded and by 2013 it covered 440 of the 444 Indonesian districts. PSTP brings together business registration and licensing procedures into one office with the objective of promoting the formalization of informal firms and the creation of new firms. PSTP made business registration easier and cheaper. However, it had no impact on firm registration (Rothenberg et al., 2016). Another example is the one-stop-shop in Guinea. The World Bank, the Government of Guinea, and the African Development Bank jointly implemented an OSS program that cut down the time to obtain permits and licenses for the mining and infrastructure sector (World Bank, 2016). The program drastically reduced the time needed to obtain licenses and permits, including environmental assessments as well as road and railway construction. Currently, the Government of Guinea and the World Bank still collaborate in a business reform project that aims at improving the license system for businesses operating in other economic sectors (World Bank, 2016).

Another intervention inspired by this approach aims at simplifying the fiscal and regulatory environment. Occasionally, governments of developing countries implement actions that eliminate the costs of registration and taxes for micro enterprises and self-employees who earn less than a certain threshold level of income or turnover. This is the case for the Gadget Mobile Application License (GAMPIL) program implemented in Bandung, Indonesia. Micro enterprises with a budget below 500 million Rupiahs (about 35.000 euros) can register without costs simply by downloading a mobile application. There are no evaluations or reports of the GAMPIL program, therefore there is not yet any systematic evidence about its impact on firm formalization.

A third example is SIMPLES (*Sistema Integrado de Pagamento de Impostos e Contribuições das Microempresas e Empresas de Pequeno Porte*) enacted in Brazil in December 1996. SIMPLES is a new tax system that simplifies bureaucratic procedures and reduces the costs of red tape by unifying six different taxes in one unique tax with a reduction of 8% of the total burden. The literature concerning the impact of SIMPLES on firm registration reports contrasting findings. Fajnzylber (2011) found that the SIMPLES program increased the registration rate by 11 percentage points and improved the performance of registered firms. Monteiro and Assunçao (2012) found a positive and significant impact only for firms

operating in the retail sector. Additionally, they found no improvement in the performance after business formalization. Piza (2016) suggests that the main reason for explaining the different findings is the month used as a cut-off point.

Voluntarist approach: Rational exit model

The rational exit model belongs to the framework of the voluntarist approach (Maloney, 2004; Perry et al., 2007). This approach disagrees with the legalist exclusion thesis that the informal sector is the set of residual activities excluded by governments. Instead, the informal sector is seen as corresponding to the "voluntary entrepreneurial small firm sector found in developed countries" (Maloney, 2004). Rational exit authors argue that the high costs and low benefits of formalization might prevent firms' participation in the formal sector. Most firms take the decisions after weighting costs and benefits of registering their business. Therefore, next to the involuntary informality there is a voluntary (in)formality resulting from the rational decision of firms (Perry et al., 2007).

According to the rational exit model, the informal sector is far from being a disadvantaged sector and most informal enterprises are not marginal activities held back by regulations but firms that voluntarily decide whether and when to leave the informal economy. High levels of informality are therefore the result of mass decisions to exit the formal sector. The rational exit model suggests that entrepreneurs take decisions concerning the formalization of their business based on a cost-benefit analysis (Maloney, 2004). When the costs of formalization exceed the expected increase in revenues, firms stay informal. Consequently, when the expected increase in income exceeds the costs of registration and tax, firms enter the formal economy.

Resulting policies aim at tackling the main sources of voluntary and involuntary informality (Perry et al., 2007) by reducing the costs of formalization and creating or increasing benefits to formalization. This implies that governments should implement reforms that aim at reducing the entry costs to the formal sector by cutting registration time and costs and by reducing the tax burden after registration. Moreover, the reforms should increase the benefits of formalization, such as facilitating access to credit and to business development services or promoting higher wages in the formal sector.

Contrary to facilitation policies, *carrot interventions* are based on the assumption that reducing the costs of formalization does not provide a sufficient incentive for persuading

informal firms to register. *Carrot* type policies focus on increasing the benefits for firms after formalization rather than merely reducing registration costs. An initial action that governments can take to increase the benefits of formalization is to introduce prizes and monetary compensation for firms that register. Similarly, other policies could improve access to credit and to other business development services for formalizing firms.

Such types of policies have been implemented in many Western countries (Fandl and Bustamante Izquierdo, 2016; Williams and Renooy, 2013). For instance, in the United States, the registration of a firm involves many benefits such as access to credit, seed funding, tax deduction, ability to rent or buy commercial space, and the ability to legitimately import or export goods (Fandl and Bustamante Izquierdo, 2016). These benefits together with rigid enforcement make it less rewarding for enterprises in the US to operate in the informal market. In turn, enterprises in most developing and emerging economies operate in contexts that are characterized by low levels of enforcement and low benefits for operating in the formal economy.

Similarly, in 2006, the government of Germany introduced the Gründungszuschuss (GZ), a start-up premium to unemployed individuals who want to start a new business. In addition to their unemployment benefit, recipients receive a monthly grant of 300 Euros for the first six months. This support is extended for another nine months if the business is still in operation after the initial six months. In the period 2007-2010 between 119,000 and 147,000 new recipients enrolled in the scheme every year. Importantly, 19 months after starting up the business 75-84% of them are still running (Williams and Renooy, 2013). Originally, the GZ was conceived as a measure for tackling unemployment and smoothing the transition from undeclared work to self-employment. However, it is worth stressing that only 11% of those unemployed engage in undeclared (or informal) work. Therefore, the efforts put in place by the German Government (as well as many other governments) risk to produce limited impacts.

Ethical approach: Parasite model

The parasite model looks at informality from the perspective of its illegality. Authors supporting this view describe informal firms as sly dogs carrying out parasite activities that lead to unfair competition and threaten formal firms by cutting the costs of production and evading taxes (Farrell, 2004; 2006; Baily et al. 2006). Moreover, according (but not

restricted) to the parasite model, informal firms are less productive and run by less educated entrepreneurs with lower levels of human and physical capital. Additionally, it is argued that firms cannot upgrade because they need to keep their small scale of production to avoid detection. For the same reason, informal firms have limited possibility to advertise the goods and services that they produce.

Informal firms threaten formal enterprises and create unfair competition by escaping formal regulations, evading and/or avoiding taxes, and cutting other costs of production. Hence, formalization is desirable for increasing government revenues and the tax base, and for reducing unfair competition against formal businesses. In addition, while the informal economy might create employment in the short-term, in the long run the impact of the informal economy on economic growth is deleterious. The informal economy creates a low productivity trap and undermines economic growth by taking away big portions of the market from the formal firms and evading taxes. Moreover, since most informal entrepreneurs have low human capital, they would not be able to upgrade nor to contribute to economic growth even after formalization.

The parasite model argues that firms decide whether they engage with the informal economy based on the enforcement mechanisms and on the cost of formalization. Especially, entrepreneurs decide to operate informally primarily because the low levels of enforcement allow them to conduct their business outside the law. The model suggests that informal firms persist due to the lack of enforcement by government officers, the costs of formality.

Key features for understanding the decision to formalize are the costs and benefits of being informal. Different from the rational exit model, the parasite model shifts the focus from cost-benefit analysis of formality to the costs and benefits of informality. Firms make decisions based on costs and benefits of operating informally and based on the level of enforcement. The actual level of enforcement represents a main determinant of informality together with red tape (costs of formalization) and social pressure to formalize (Farrell 2004). Increasing the level of enforcement might increase the costs of being informal and push many firms to exit the informal sector.

Policies that aim at creating incentives for formalizing, such as cutting costs or lowering taxes, are likely to fail unless they are supported by increased law enforcement. Policies should tackle and hinder informality by increasing enforcement improving. Therefore,

governments should aim at eradicating informal firms by reducing tax evasion and increasing the enforcement of official regulations.

Stick policies have their roots in the parasite model and perceive informal firms as deliberately avoiding taxes and not respecting the rules of the game (Farrell, 2004; 2006; Baily et al., 2006). Firms can operate informally because of the low quality of the institutional framework and, in particular, the low level of enforcement of the rules and high level of corruption.

In this model, the political recipe for tackling the informal economy is increasing enforcement and discouraging corruption and the bribe culture. The logic underpinning this approach is to increase the perceived or actual costs of engaging with the informal economy (Williams, 2016). Policymakers can implement many actions to achieve such a target. Increasing the number of tax officers might increase the presence of inspectors on the ground and discourage informal, non-compliant activities. Moreover, increasing the wages of public servants might discourage inspectors to accept bribes and therefore reduce the level of corruption. Finally, governments can take actions that aim at increasing the penalties for lack of compliance with the rules and regulations.

The governments of several European countries –Belgium, the Czech Republic, Denmark, Portugal, Slovakia, and Spain, for example – have taken actions that are motivated by this approach. The actions range from increasing the number of inspections to increasing the effectiveness of enforcement, from pre-announced inspections to actions addressed at specific economic sectors (Williams and Renooy, 2013). Sanctions in EU countries vary depending on the size of the business and on the type of infraction of the rules and regulations. The observed tendency over the past years has been to tighten enforcement and to increase fines. Many countries increased the penalties for infractions. For example, Slovakia raised the sanctions for firms that do not register to 17,000 Euros (Marchese, 2015).

There are very few rigorous evaluations of the impact of policies increasing enforcement to encourage formalization of informal enterprises. The existing experimental evidence suggests that these actions have a little positive impact on firm registration (Bruhn, 2013; Galiani et al., 2017). Other studies found contrasting results about the impact of improving detection and penalties (Williams, 2016). A possible disadvantage of these policies is that

they might result in governments undermining the enterprise culture that they wish to foster (Williams, 2016).

Another type of action based on the stick approach is to force informal street-venders to a certain location in markets or in other places. In other words, this is a spatial approach to the problem of the hawkers that is applied in many countries. For instance, in Kenya, the local Government of Nairobi addressed the problem with a forced relocation of informal traders to the new Market of Muturwha. In 2006, Nairobi was facing high unemployment and an increase of informal street venders and hawkers who were selling on the roadside, resulting in violent conflict with the local authorities (David et al., 2012). This led the local government to launch the Muturwha Market Project: a market building was constructed for 8,000 informal traders. In 2008, the construction of the Muturwha Market was completed and the relocation of the traders took place. The traders engaged again in violent disputes with the police over taxes and the assignment of stalls (David et al., 2012). The process of relocation was far from being smooth also due to the exclusion of stakeholders, such as informal traders and associations of informal traders, from the design and implementation of the program. The relocation of informal hawkers to the market building resulted in 15,000 informal traders operating in the market. The local government had originally planned the building for only 8,000 entrepreneurs. Many new informal hawkers still operate in the central business district (David et al., 2012).

A similar intervention has been implemented in Quito, Ecuador. In 1998, the local Government approved the *Plan for Modernization and Reorganization of the Informal Street Vendors* consisting of the formalization and relocation of 6,000 street vendors to eleven Popular Commercial Centres. Associations of informal street vendors took the lead in the relocation. However, only about half of the firms at that time were part of associations or unions (Ferragut and Gómez, 2013). Therefore, informal vendors who were not part of any associations were left out from the implementation of the program and from the relocation process. The effects of the program were mixed: only around 3,000 entrepreneurs registered their business and moved to the new locations; only a few firms benefited from registering the business, and many vendors who did formalize did not experience benefits (Ferragut and Gómez, 2013).

Post-Structuralism: Diverse economies model

Post-structuralism criticizes the formal/informal dichotomy and proposes re-reading the path of economic development in the different countries all over the world (Williams et al., 2013). To achieve such a target, the post-structuralist approach suggests deconstructing the hegemonic discourse about the formal market economy and articulate alternative interpretations. The discourse on formalization assumes development is a path progressively leading to the formalization of economic activities, an unavoidable move towards the formal market economy. This discourse is pervasive and seeks to shape the world in its own image, influencing not only the academic debate but also policymaking. However, contrary to the predictions of this model, the informal economy persists over time. This reveals the fallacy of the formalization project. According to post-structuralism, development takes a different path in different contexts, resulting in different forms of entrepreneurship. The informal economy, therefore, is seen as an expression of diverse economies.

Two main approaches can be distinguished within post-structuralism: the resilience model and the informal enterprise culture model. The resilience model (Gibson-Graham, 2000; Escobar, 2001) argues that informal enterprises are activities conducted outside the capitalist formal market economy and follow a logic that is different from profit maximization. The informal economy is the expression of a path that is different from modernization. Consequently, informal activities are already in the stage of post development. Following this interpretation, the decision of non-formalizing is an expression of a voluntary resistance to capitalism.

On the other hand, the informal enterprise model (Williams and Nadin, 2010; Williams et al., 2013) depicts informal activities as the outcome of a different path of economic development. Informal firms embody a different form of entrepreneurship, they are the product of a different, more dynamic, entrepreneurial culture (Williams and Nadin, 2010). In this version of the post-structuralist model, informal activities are part of the formal capitalist system and not outside.

Both approaches agree on the need to deconstruct the hegemonic discourse on formality and on the premise that the informal economy is the expression of a diverse economy. However, the approaches diverge in their representation of the characteristics and the agency of informal firms. The resilience approach conceives informal activities as resilient to

capitalism and moving outside the formal market economy; the decision not to formalize represents an act of resistance to the capitalist system. Therefore, informality is seen as a voluntary exit from the formal economy. On the other hand, the informal enterprise culture model argues that informal businesses are activities conducted within the capitalist system and interacting with formal firms. Supporters of this model claim that informal entrepreneurship can be either necessity-driven or opportunity-driven, and sometimes the decision of formalizing can be simultaneously both necessity- and opportunity-driven (Williams and Round, 2007; Williams and Nadin, 2010).

Policies resulting from the post-structuralist school recognize the diversity of informal entrepreneurship and the variety of agencies leading to the decision of formalizing. Resilience model supporters stress that policies should support the alternative path of development and accept informal activities: "legitimizing this hidden enterprise culture could be an important means of promoting enterprise and economic development in such populations" (Williams and Nadin, 2010). Policies therefore aim at unlocking the potential of informal enterprises by improving access to credit and other business development services.

Policies inspired by post-structuralism tend to involve informal firms and informal agents in policymaking processes in order to elaborate strategies that offer an alternative to the systematic formalization of firms. The main pillar of this policy is to support informal firms without forcing them to formalize. Inclusive policies offer services such as access to credit and to other business development services for informal firms without conditioning access to such offers and interventions on the registration of the business. Another measure consists in training informal entrepreneurs in order to unlock their (full) potential. Such offers and interventions might help creating an environment where informal entrepreneurs can fully exploit their entrepreneurial culture and their ability to run a business so that they can contribute to the development of their local communities and ultimately to the development of their country.

Involvement policies do not neglect the importance of tailored policies and often promote activities inspired by tailored policies, such as involving informal actors in policymaking. Tailored policies often suggest actions typical of involvement policies, such as training of informal entrepreneurs and promoting access to credit for informal firms. The main difference is that involvement policies focus largely on market-oriented informal firms and

aim at supporting the enterprise culture of informal entrepreneurs to foster local development. Tailored policies usually focus on survival activities driven by non-economic decisions and surrounded by non-market institutions.

An example of a policy adopting a post-structuralist approach is the creation of centres providing tailored business advice and training to informal entrepreneurs in disadvantaged neighbourhoods in Italy. The centre CUORE in Naples was founded in 1999 and operated until 2009. The objective was to promote the regularization of informal entrepreneurs and the creation of new formal enterprises. The centre provided business development services to informal and aspiring entrepreneurs in four districts in Naples. CUORE offered general advice, concerning issues such as registering the business or obtaining a tax number, as well as specific advice, helping entrepreneurs to hand in applications for public support, or to participate in regional and national trade fairs, and create business consortia. By 2009, CUORE had provided support to 3,600 entrepreneurs; 1,280 of them received advice on business registration, and 325 enterprises shifted to formal operations (Marchese, 2015). This case shows that training and advice are useful instruments for promoting formalization (although they require some time). Specific advice tend to be more effective than general training in fostering law compliance. Moreover, hiring staff members from the same community of the entrepreneurs can be useful to win the confidence of participants (Marchese, 2015).

Substantive approach: Inner logic model

Another group of scholars (Hillenkamp et al., 2013; Morris and Polese, 2013), hereafter referred as taking the substantive approach, challenge the (new) modernization discourse around the informal economy. In particular, substantivist authors criticize the assumption that the modernization of the economy would replace informal activities with the market economy. The substantive approach argues that informal activities are the outcome of a different logic and expression of a sphere of (economic) autonomy, rather than the consequence of failures of modernization strategies.

The substantive approach roots in the Polanyian school (Polanyi, 1957). It conceives the informal economy as part of the substantive economy, which is the daily empirical strategy for ensuring livelihood. This is perceived as opposite to the formal economy postulated by theoretical (economic) models. Indeed, many scholars belonging to this approach prefer the

term "popular economy" rather than informal economy, giving importance to autonomous popular practices for ensuring livelihoods. In this perspective, popular practices in the informal economy "*are the most visible sign of spheres of autonomy, which populations are managing to preserve or recreate for the management of resources, and for the organization of work, production methods, and lifestyles*" (Hillenkamp et al., 2013).

The substantive approach argues that informal economy is a set of activities that are heterogeneous in terms of both their characteristics and in terms of their agency, i.e. their economic logic. The informal economy is both path dependent and context specific. Thus, its characteristics are contingent on the historical, political, social, and cultural context where it takes place. Furthermore, in line with the Polanyian tradition, sustantivist scholars argue that informal agents conduct their activities driven by four economic principles: market, reciprocity, redistribution and householding (Hillenkamp et al., 2013); the four economic logics can coexist and be combined giving shape to several types of activities.

Moving to the decision of formalizing the business, substantivist scholars define the "inner logic model". The inner logic model argues that entrepreneurs take the decision concerning formalization not only based on the market logic (e.g. cost-benefit analysis and efficiency) but also based on factors such as risk minimization and preservation of social ties. In other words, the decision of engaging with informality results from the interactions of the four above mentioned economic principles. Hence, the inner logic model challenges those approaches that look only at market forces and consider only one economic logic, namely the market logic. One of the most important elements of this approach is that it completely shifts the attention to the agency side. In fact, substantivist authors focus on the agency of informal entrepreneurs and consider the decision of formalizing the business not only as reaction to the stimulus represented by formalization policies.

Finally, substantivist authors stress the importance of implementing policies that acknowledge the diversity of "informal" actors: policies should take into account the alternative patterns that are often survival strategies. Moreover, interventions should be based on the idea that informal actors have capabilities and not only vulnerabilities.

Similar to the post-structuralist approaches, substantivist scholars criticize policies aiming at systematically formalizing informal agents. Moreover, they stress the importance of implementing tailored policies acknowledging the diversity of informal agents (Hillenkamp

et al., 2013). Indeed, following the inner logic model, tailored policies result from the assumption that informal agents have heterogeneous characteristics and take decisions following more than one economic logic. Therefore, interventions should be tailored to the priorities of informal agents without necessarily altering their nature.

Tailored policies should actively involve informal agents in the policymaking process, conceiving them as agents endowed with capabilities and not only as vulnerable actors lacking technical competences. In this perspective, interventions should aim at interlinking formal and informal economic practices, supporting popular practices of resource management, and promoting poverty reduction policies based on the inner logic of informal entrepreneurs.

An example of interventions based on this approach might be the implementation of microcredit systems that build on already existing informal practices. Many micro-credit programs indeed exploit the importance of social ties in the decision-making process, particularly the capacity of social pressure in enforcing repayment of loans.

Another example of an intervention inspired by this approach is the implementation of a delegated management system of the markets in Bamako, the capital city of Mali. The local government of *Commune I* (one of the six municipalities in the district of Bamako) replaced the old direct management approach with a delegated management approach in 2005. The new approach moved the management of the markets and the collection of taxes from the staff of the municipality to an independent entity. The initiative took place in five of the nine markets of the municipality and involved more than half of the informal entrepreneurs operating in the market (David et al., 2012). The objective of the program was to build a partnership between stakeholders and the municipality, to increase tax revenues, and to improve the working environment of informal traders operating in the markets where the initiative took place. The program actively involved market committees and informal associations in the management of the markets and facilitated the creation of an umbrella organization for committees and associations. The initiatives established a cooperation between the government and informal traders that helped the latter to better advocate for their interests. Now, this cooperation goes beyond the delegated management to the participation of informal traders in the definition of local development plans (David et al., 2012). The initiative has been successful as well in increasing the level of tax collection. The tax collected by the municipality increased by almost 100% in the markets under delegated

management. The increase in revenues is largely due to the greater voluntarism of informal traders that were involved in the management process and can ensure that the paid amount would contribute to maintain the markets (David et al., 2012).

Another example comes from Benin. It is the recognition of pirogue buses that were already operating in the lagoon. The municipality of Cotonou decided upon the stops and the timetable of the pirogues, but the drivers do not need any registration or license (Floridi, 2013). In this interesting case informal players do not need to register or to pay any tax, but only provide a service that ensures that the lake area is connected to the capital city Cotonou which is crucial for the economy of the area.

Institutionalist approach: Institutional asymmetry model

Institutionalist scholars emphasize that the institutional environment play a crucial role in determining the size of the informal economy. Following North's (1990) definition of institutions, institutionalist authors typically distinguish formal institutions from informal norms. The former are official laws and rules whilst the latter are unofficial norms. Prescribing to this distinction, informal activities are often defined as those activities that take place out of the formal regulation but regulated by informal norms. Informality is therefore far from being an unregulated sector but rather the set of activities that take place in an informal institutional environment.

Some scholar criticizes the institutional dichotomy arguing that institutions can be classified in terms of legality and legitimacy (Webb et al., 2009). In this perspective informal activities are deemed as illegal by the law but seen as legitimate by specific social groups. Informal activities are thus socially accepted. Thus, informal enterprises are diffused in context where the social costs of informality (and more generally of non-compliant behaviours) are low.

A peculiar approach among institutionalist scholars is the 'institutional asymmetry model'. Institutional asymmetry authors argue that the incongruence between formal and informal institutions facilitates the diffusion of informal activities. This approach roots in the seminal works of Feige (1997) and Gërxhani, who pointed out that non-compliant behaviours proliferate when formal and informal institutions clash. Drawing on the works of Feige (1997) and Gërxhani (2004), an emerging body of institutionalist literature claims that informality is the outcome of the asymmetry between formal and informal institutions. In this view, the asymmetry between codified laws of formal institutions and the socially shared

unwritten norms of informal institutions explain the diffusion of informal enterprises and undeclared work (Helmke and Lewitsky, 2004; Williams et al., 2015; Williams and Horodnic, 2015, 2016; Williams and Franic, 2016; Williams and Said, 2016).

The institutional asymmetry model argues that firms are more likely to participate in the formal economy when formal institutions are not aligned to informal institutions. Following this model, entrepreneurs can opt to comply with informal institutions when their individual values and beliefs are aligned to the informal societally shared norms (Williams et al., 2015). Ultimately, in this view the decision of complying with formal institutions rather than informal ones relies on the "compliance culture" of the entrepreneur.

In terms of policymaking, the challenge is to reduce the institutional asymmetry by tackling the widespread hidden enterprises culture. Thus, the objective is to change the psychological and social contract between the state and its citizens to encourage compliance culture and improved self-regulation. The purpose is to instil a voluntary commitment to compliance rather than using direct control strategies forcing them to formalize. This can be achieved through indirect control strategies aiming at changing informal institutions. The spectrum of policy actions that can be undertaken for changing informal institutions ranges from the implementation of training programs to informational sessions, from improving awareness of the benefits of formal entrepreneurship to increasing the trust in governments and authorities (Williams, 2015).

One example of this type of policies is represented by an advertising campaign that in UK led to an increase of people registering for tax purposes from 2007 to 2008 (Williams, 2015). In addition, there are a myriad of initiatives at local level aiming at promoting the awareness of the advantages associated to business registration in the attempt of improving the compliance culture. For instance, the case of the "Business Formalization Campaign" that took place in 12 Indian provinces between 2010 and 2012. The campaign was a pilot program that would have been replicated on larger scale in case of a successful impact. The campaign successfully increased business formalization and survival rate (Olapade, 2015).

Comprehensive approach: Holistic model

The holistic model has roots in the ILO-WIEGO continuum framework (Chen et al., 2002) and defines the economic system as a continuum of activities from informal to formal. The holistic model focuses on the links between formal and informal dimensions. This approach

looks beyond the desire for formalization and understands the informal economy as a heterogeneous set of activities. Informality is driven by manifold reasons and it is context specific. Informal firms are heterogeneous in terms of their characteristics and their agency: different types of activities are not formalized for different reasons. Crucial for understanding the choice are the costs of informality and the level of enforcement.

Some authors argue that firms operate informally because of the costs of formalization and due to the lack of enforcement (Kanbur, 2009). Similar to the parasite model, Kanbur's model focuses on enforcement as the main determinant of informality. Nonetheless, informal activities are far from being merely parasite and avoiding tax since they are seen as contributing to and necessary for promoting economic development. On the other hand, authors such as Perry et al. (2007) and Chen (2012) suggest that the costs of formalization are the main determinants for decisions concerning formalization. Perry et al. (2007) developed a holistic framework to explain the causes pushing firms to enter the informal economy combining the exclusion, the rational exit and the dependency model. The framework suggested by Perry et al. (2007) is radically opposite to Kanbur's framework (and the parasite model) and does not consider enforcement as the main cause of informality.

Since the informal economy is likely to persist over time and it is intrinsically connected to the formal economy, policies should focus on promoting more equitable links rather than promoting formalization policies (Guha-Khasnobis et al., 2007; Chen, 2005). Governments put too much effort in implementing formalization policies that have a limited impact and might not be feasible. Formalizing the informal economy means that all informal firms register their business; however, this might be difficult to implement since administrations would have to deal with a large number of bureaucratic procedures and they could not afford to offer the incentives and benefits that formal firms receive (Chen, 2005). Additionally, formalization has different meanings for the different stakeholders involved, such as entrepreneurs, associations, unions, organizations, and governments. Since the entire formalization of the economy is not feasible, it would be better to acknowledge that the informal economy is not a temporary phenomenon. Formalization policies should take into account the different stakeholders, and they should be accompanied by complementary actions addressed to those who stay in the informal economy.

From this perspective, the challenge is to increase the benefits for operating informally and, at the same time, to reduce the costs of operating formally (Chen, 2005). Policies aiming at

achieving such targets might successfully interlink the formal and informal economy creating a context that is favourable for both formal and informal firms. Policies and initiatives might create a "balance between formal interventions and informal practices" (Guha-Khasnobis et al., 2007; Chen, 2005). In this spirit, formal interventions are considered more effective if they do not aim at replacing informal rules but help fine-tune them instead. Other authors, such as Kanbur (2009), suggest increasing the level of enforcement of official regulations.

Governments can reduce the tax burden and provide monetary incentives and access to credit to small firms, both formal and informal ones. Decreasing the monetary and time costs of registration represents incentives for those firms willing to formalize. In addition, a more flexible enforcement of the rules for small firms might represent an incentive for those firms that want to be formal and for those that cannot afford to formalize. This approach drastically shifts the perspective of policymakers since it argues that the interactions between the formal and informal economy might become the engine of a process of economic development.

An interesting example is the Identifiable Grouping Taxation (IGT), implemented in Ghana from 1987 to 2003. Initially applied to the informal transport sector, the system was subsequently extended to other economic sectors. IGT was a presumptive tax system that used associations as agents for collecting taxes from their members. The main objective of IGT was to broaden the tax base and to promote a more balanced distribution of the tax burden. IGT contributed to increased tax revenues from the informal sector from 0.97% of total tax revenues in 1988 to 1.6% in 1991; however, in the following years, the collected revenues progressively dropped and were at 0.39% in 2002 (Dube and Casale, 2016). As a result, in 2003 the Government of Ghana replaced IGT with a new system that does not use associations anymore. The example of IGT provides evidence that using associations for collecting revenues from presumptive taxation might contribute to increase the taxpaying culture among the members. Moreover, it showed that involving informal associations contributed to the creation of a political space of dialogue with the government. Yet, the use of associations for revenue collection has some problems: many associations did not pass on the revenues to the Internal Revenues Service because of lack of monitoring and many associations were not internally democratic (Dube and Casale, 2016). Many other West African countries introduced similar measures. According to the IMF more than 25 countries in sub-Sahara Africa and 14 countries in Latin America have a special tax regime for small enterprises including informal firms (Dube and Casale, 2016).

2.3. Collocating the research approach in the debate

Despite the differences among the different approaches reviewed above, they can be roughly divided in two broad families: (i) the dichotomist family and (ii) the heterogeneity family. The dichotomist family generally understands the informal economy as opposite to the formal economy and suggests representation based on an opposition between the two systems. The dichotomy can vary in terms of characteristics and depending on the author: rural versus urban, traditional versus modern, exploited versus exploiter, unethical versus ethical, survival versus growth-oriented, unincorporated versus organized, labour intensive versus capital intensive. Despite the differences across authors, they all have in common a binary logic. In other words, the terms of the dichotomy might change, but what does not change is the fact that the two elements (informal and formal) are opposite to each other.

Contrary to the dichotomist family, the heterogeneity family criticizes the formal-morphism (Cross, 2000); that is, the dichotomist's tendency to define informal as opposite to formal. Scholars supporting this approach argue that the flat representation based on the dichotomy contrasts with the empirical heterogeneity of informal activities. Heterogeneity approaches understand the economic system as a continuum of activities from informal to formal and argue that the informal economy is heterogeneous in terms of characteristics. Despite the fact that the existence of interactions between the formal and informal economy is acknowledged, only two dimensions are considered, namely, formality and informality.

When explaining the decision of enterprises to engage with (in)formality both dichotomist and heterogeneity families have two main limitations in common. First, they only consider the possibility for a firm to engage with either formality or informality. Hence, none of the existing approaches allows for the possibility that the same agent might simultaneously engage with the formal and the informal economy. Second, most of the literature considers only one level of (in)formality, for instance registration or a license for operating a business; other dimensions are hardly ever considered. This rules out the option to engage simultaneously with different dimensions of formality and informality. It is exactly these different dimensions of formality and informality that deserve further study.

Thus, this thesis outlines a new approach to enterprise decision-making based on the assumption that there are different dimensions of (in)formality, and that agents engage with (in)formality at different levels. Therefore, the same firm might simultaneously engage with

both formality and informality giving rise to hybrid firms that are neither purely formal nor purely informal. The current research is best placed within the framework of the heterogeneity family, although it also develops a new approach that goes beyond the formal-informal dichotomy. The new approach is based on the concepts of borderland and trans-formal firms, which are described in full detail in Chapter 8.

Borderland

The current approach is based on the ILO (2002) definition of the informal economy as the combined set of informal sector (informal firms) and informal employment both within the informal and the formal sector. I argue that the formal and informal economy often interact in a continuum where activities can move between formal and informal dimensions. These interactions give place to a space of ambiguity between formality and informality. I define borderland as the space of overlap between the formal and the informal economy.

The new definition of informal economy by ILO and WIEGO (2002) acknowledges the existence of a continuum of activities from the informal to the formal economy where formal and informal activities often interact. However, the approach by the ILO only partially overcomes the dichotomy since it limits the interactions to a matter of employment relations, which is understandable considering the mandate of the ILO. Conversely, I argue that there is a space of overlap between formality and informality rather than a clear borderline separating the two spheres. In this framework, the informal and the formal economy interact very often; the former provides labour, goods and service to the latter. Furthermore, the interactions are mutual: not only from informal to formal, but also from formal to informal. Informal activities rely on the provision of goods and services, equipment and input from formal firms. Moreover, the interactions between the two spheres go beyond the provision of labour, goods, and services and also involve the institutional level. This implies that agents move across both formal and informal institutions. In other words, the borderland can also be understood as an institutional space.

The dichotomy between formal and informal institutions has already been problematized by Webb et al. (2009) who distinguish between the legality and legitimacy of institutions. Informal institutions can be deemed as illegal by law but are perceived as legitimate and thus socially accepted. Formal institutions, in turn, define legal boundaries that can be seen as illegitimate. Drawing on this distinction, institutionalist scholars have argued that non-

compliant behaviours arise when formal and informal institutions clash (Feige, 1997; Gërxhani, 2004; Williams et al., 2015). In other words, the institutional asymmetry between codified rules and socially accepted practices explains the diffusion of informal firms. Nonetheless, as noted by Helmke and Letivsky (2004), formal and informal institutions are not only competing and substitutive, they can also be complementary and accommodating. Thus, informal activities can arise also when formal and informal institutions are aligned.

Interactions between formal and informal institutions give place to the institutional borderland. In line with the new-institutionalist literature, the conceptual approach of this research assumes that formal and informal institutions are not two separate spheres but interacting ones. Formal and informal institutions can simultaneously engage with each other at different levels. In other words, agents move through formal and informal institutional paths that constitute the institutional borderland. The institutional borderland implies that firms can simultaneously engage with both formal and informal dimensions of the economy giving place to hybrid entrepreneurial forms that I refer to as trans-formal firms.

Trans-formal firms

The second concept at the core of my approach is the notion of trans-formal firms, which are those firms neither purely formal nor purely informal. Trans-formal firms are hybrid forms resulting from the process of creolization between the different dimensions of formality. Authors (Berner et al., 2012; Grimm et al., 2012; Floridi et al., 2016; Williams et al., 2016) have already questioned the homogeneity of the informal sector and the contraposition between formal and informal enterprises. Some scholars (Berner et al., 2012; Grimm et al., 2012) focus on the existence of distinct types of informal enterprises according to characteristics such as size, productivity and capital intensity. Other authors (Floridi et al., 2016; Williams et al., 2016) emphasize the existence of hybrid entrepreneurial forms showing traits of both formality and informality. The notion of trans-formal firms thus stems from the assumption that there are different levels of (in)formality and every enterprise can engage simultaneously with the various dimensions. The different degrees of formality combined give shape to a variety of hybrid forms neither purely formal nor purely informal corresponding to what I call trans-formal firms.

The new classification of trans-formal firms derives from the definition of informal enterprises suggested by the International Conference of Labour Statisticians-ICLS of 1993,

and also adopted by ILO (2002) in its definition of informal economy. The documents describe informal firms as the basic production unit in the informal sector and define them as unincorporated enterprises that do not keep an account separate from the household. In order to operationalize this notion, an extended definition of (in)formal firms is proposed based on three criteria, each one representing an aspect of (in)formality that an enterprise might display. The three considered criteria are (i) registration, (ii) separate bank account, and (iii) official balance sheet (or financial account). The different combination of criteria results in at least three types of firms: formal, informal, and trans-formal. According to this definition, formal enterprises are those firms satisfying all three criteria; on the other side, informal activities are those that do not fulfil any of the criteria. Trans-formal firms are those firms satisfying either one, two, or three criteria; hence, trans-formal firms are enterprises neither purely formal nor purely informal.

It is crucial to stress that the above-mentioned criteria are not the only criteria that can be adopted. The employment of undeclared workers, the provision of social protection to the employed workers, and the registration with the tax office (or if the enterprise has a tax number), are some of the other possible criteria of (in)formality. Therefore, far from being an exhaustive classification of firms in three types, the approach represents just an example of how the dichotomist representation of enterprises can be overcome.

Post-structuralist and substantivist influences

As already mentioned, the conceptual approaches to the informal economy are not exclusive, meaning that different approaches can coexist in the same research or in the same study. The approach presented in this thesis combines aspects from both the post-structuralist (especially the diverse enterprise model) and the substantivist approach. On the one hand, the research questions the analytical capacity of the dichotomy proposing a re-definition of the dichotomy; on the other hand, it aims at investigating the agency of informal entrepreneurs and the role of networks where the activities of informal entrepreneurs are embedded. Along the lines of post-structuralist models, this project rejects the formal/informal dichotomy and adopts a new approach in an attempt to give a central place to the so-called informal agents and to legitimize practices that are often put aside by dichotomist representations. Specifically, the research deconstructs the notion of the (in)formal economy and informal firms in favour of introducing an alternative to the formal/informal dichotomy. I apply a Derridean strategy of deconstruction that consists in adding at least one term to break the

dialectic (Williams and Round, 2013). In short, I deconstruct the dichotomy by identifying a third dimension where formality and informality overlap: the borderland (Floridi et al, 2016).

Another feature of my approach that is shared with the existing literature is that informal entrepreneurship is seen as an expression of a different enterprise culture (Williams and Nadin, 2010). That means that, far from being only survival activities, many activities labelled as informal are dynamic and show an entrepreneurial spirit and an ability to conduct business that is typical of market-oriented firms. Thus, this approach rejects the dichotomist contraposition between formal, market-oriented firms versus informal, survival firms that tends to neglect the entrepreneurial ability of informal (and trans-formal) firms (Berner et al., 2012).

The approach adopted here also includes elements of substantivist approaches, in particular the assumption that entrepreneurs conduct businesses embedded in networks of interpersonal relations (Hillenkamp et al., 2013). Hence, networks are crucial for understanding how firms operate, and especially how firms take decisions concerning the formalization of their business. In fact, networks can offer institutional alternatives to formalization in terms of access to market and business services such as loans and rotating credit systems. For instance, in a previous study conducted in Palestine and Egypt, many market-oriented firms did not formalize because they could access the benefits of formalization by exploiting their networks of interpersonal relations (Floridi et al, 2016).

2.4. Concluding remarks

This chapter presented an overview of the main approaches to the informal economy with a special focus on the discourse around informal enterprises and on the policy implications of each approach. The notion of informal enterprise is the focus of a lively debate that is widely documented in the literature. The proliferation of approaches to the informal economy indicates the ubiquity of informal firms as a concept and the heterogeneity of informal enterprises. Therefore, each approach represents a piece in the "jigsaw puzzle" of informal entrepreneurship.

The debate around firms' decisions regarding formalization affects policies designed to promote formalization or to tackle informality. Many different policies have been adopted to address informal firms. Policies can be roughly divided into nine groups (Table 1); each

group has been inspired by one of the approaches outlined in this chapter. Yet, the resulting policies are not mutually exclusive. They might coexist and they often include interventions inspired by different approaches, such as interventions that aim at decreasing the costs of registration, those that cut bureaucratic procedures, and those that reduce the tax burden. These types of interventions are popular across the different approaches. Note that the examples provided above are illustrations and not all have proven successful. Several factors affect the success of policies and interventions, ranging from the institutional context to the economic composition, from the stakeholders to their modality of involvement. Thus, replicating interventions in different contexts does not ensure their success nor is there a policy that can be considered a panacea.

[Table 1]

It is equally important to point out that the policies discussed are not exhaustive since the only interventions considered are those that aim at increasing the formalization of *firms* and therefore exclude those policies focusing on other outcomes (for instance, extending social protection coverage to informal workers). Policymakers should bear in mind the heterogeneity of informal enterprises and the variety of logics underpinning the decision to formalize a business. Beyond the specific actions that local and central governments can take, one-fits-all solutions tend to neglect the diversity of informal enterprises. In other words, policies need to be tailored to the diversity of informal agents. In this respect, the involvement of informal actors in the policy making process could help identify priorities and formulate a win-win solution.

The chapter has stressed two elements that will be further explored in the thesis. First, the review of policy actions identified a gap represented by the absence of studies systematically gathering evidence about the effects of policies and rigorously assessing their overall impact. Second, the heterogeneity of the informal sector highlights the need to go beyond dichotomized representations of informal enterprises.

Tables and figures

Table 1: Approaches and policies addressed toward informal entrepreneurs

Approach	Model	Policy	Logic of intervention	Activities/ actions
Dualist	Dual economy model	Laissez-faire	Reduce costs of formalization and increase education.	• Poverty alleviation policies and microfinance services for informal firms • Training of formal entrepreneurs
Legalist	Exclusion model	Facilitation	Reducing costs of formalization	• Reduce costs and time for registering businesses • Reduce number of procedures • Reduce taxation.
Voluntarist	Rational exit model	Carrot	Increase benefits from formalization	• Introduce prizes and monetary compensation for firm registration • Facilitate access to credit for newly registered firms • Facilitate access to business development services for firms that register • Decrease taxation or temporary exempt after registration
Ethical approach	Parasite model	Stick	Increase enforcement	• Increase number of officers • Rise wages of inspectors • Increase penalties for non-complying firms • Forced relocation of informal street vendors
Structuralist	Subordination model	Carrot and stick	Increase enforcement and improve quality of regulation	• Improve social protection for employees • Extend labour rights • Increase enforcement
Substantive approach	Inner logic model	Tailored policies	Recognize diversity of popular economic practices and the plurality of economic logics. Policies tailored to the priorities of informal actors.	• Involve informal actors in policy making • Support popular practices of resource management • Poverty reduction policies based on the inner logic of informal entrepreneurs
Post-structuralist	Diverse economies model	Involvement	Involve informal firms and informal agents in policymaking and improve	• Facilitate access to credit for informal firms and to business development services • Train informal entrepreneurs

Approach	Model	Policy	Logic of intervention	Activities/ actions
			informal firms' access to credit and to other business development services.	
Institutionalist approach	Institutional asymmetry model	Indirect control	Decrease institutional asymmetry and improving business compliance culture.	• implementation of training programs • informational sessions • awareness campaign to explain the benefits of formal entrepreneurship • increasing trust in governments and authorities
Comprehensive approach	Holistic model	Interlinking policies	Reduce costs of formalization and increase benefits of being formal.	• Interlinking formal and informal economy • Decrease tax • Decrease costs and time of registration • Decrease number of procedures for registering the business • Reduce enforcement for micro and small informal firms • Facilitate access to credit.

Source: Author's elaboration

Part 1:

Beyond the discourse on (in)formality. Evidence on enterprise formalization and on its effects on business performance

3. Shedding light on the shadows of informality: A meta-analysis of formalization interventions targeted at informal firms[1]

Abstract

Governments and policymakers promote formalization through various interventions ranging from simplifying registration procedures to increasing law enforcement. Despite these efforts, not much is known about the effects of interventions aiming at formalizing informal firms. This meta-analysis examines the empirical literature on the impact of such formalization interventions. We systematically assessed the literature on the impact of formalization policies resulting in 842 estimates from 27 studies conducted by 49 researchers and published until June 2019. We analysed the meta-impact of (i) cost, (ii) benefit and (iii) enforcement policy interventions and verified whether the resulting outcomes are influenced by the type of data, econometric approach and specification, country characteristics, as well as publication bias. Overall, we find no evidence for increased formalization associated with the so far implemented interventions. There is some indication that policies increasing the benefits after formalization are associated with increased formalization rates but the evidence base is thin suggesting that further piloting and experimenting is needed to achieve large-scale formalization of the informal economy.

Keywords: meta-regression analysis, informal enterprises, formalization, developing countries

3.1. Introduction

Since the first definition in 1973, the concepts of informal sector and informal economy have been a research concern in labour economics (Hart, 1973). However, only in the late 1980s these concepts took central stage in the debate around policymaking. The renewed attention to the informal economy led policymakers to implement policies that aim at tackling the two main components of the informal economy, i.e. informal employment and informal firms. Governments and policymakers started including the informal economy in their agenda

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culminating in the explicit inclusion of informal economy and work as part of the Sustainable Development Goals. To date, there is a large variety of policies and interventions targeting the informal economy. The most common approach in policymaking is formalization (Williams and Round, 2007). Formalization policies range from improving access to credit to providing training and other business development services to informal business. Other interventions aim at strengthening the linkages between informal and formal economy.

Formalization is considered to have a positive effect on economic growth, employment creation, labour productivity, labour conditions, and social protection (International Labour Organization, 2015; Tijdens et al., 2015; Gatti et al., 2014, Fajnzylber et al., 2011). In contrast, informal economy is associated with low quality institutions (Loyaza et al., 2005). Informal enterprises are perceived as deleterious for the economy since they often underreport employment, avoid taxes, threaten formal firms by bypassing costs of regulation and infringing copyrights (Schneider et al., 2010; Farrell 2008 and 2004; Baily et al., 2006; USAID, 2005). Consequently, formalizing informal firms is considered a strategic step necessary to unlock potential economic growth, increase competitiveness, create jobs and government revenues from taxation.

Governments and policymakers promote formalization through various interventions ranging from the simplification of registration procedures to increased law enforcement. These interventions can be categorized into three main policy approaches: (i) cutting costs and simplifying procedures, (ii) increasing benefits, and (iii) increasing the level of enforcement and visits by officers. In addition, some interventions are accompanied by information and awareness campaigns.

Notwithstanding the manifold efforts by policymakers to formalize the informal economy, there is still a knowledge gap concerning systematic evidence about the effects of these formalization interventions. Little is known concerning firm responses to formalization policies and interventions and the literature presents contrasting evidence about their success. While meta-regression analysis (MRA) has been applied in various fields in economics, for instance in labour economics (Grimm and Paffhausen, 2015; Cho and Honorati, 2014; Doucouliagos and Laroche, 2009), international economics (Demena and Bergeijk, 2017; Demena, 2015; Iršová and Havránek, 2013) and development economics (Havránek et al., 2016; Askarov and Doucouliagos, 2005), there is no meta-analysis covering the outcomes of private sector policies on the formalization of firms. There are two reviews focusing on

policies that promote formalization (Grimm and Paffhausen, 2015; Bruhn and Mc Kenzie, 2014). Bruhn and McKenzie (2014) reviewed evidence about the effect of entry reforms on firms' formalization selecting nine primary studies without imposing a systematic literature search and not carrying out a meta-analysis. The authors showed that based on their selection of studies there is only a modest increase in formalization. They suggest that increased enforcement efforts could result in higher formalization rates and that there might be a fiscal benefit to formalizing large informal firms. The second study provides a systematic review that analyses the outcomes of private sector interventions on employment generation without an exclusive focus on informality (Grimm and Paffhausen, 2015); the part of the review that zooms in on the link between formalization and employment creation includes five studies about interventions that promote formalization. Our focus is not on formalization and employment generation as in the study by Grimm and Paffhausen (2015), but on formalization of previously informal operations as in Bruhn and McKenzie (2014). Compared to Bruhn and McKenzie (2014), the paper at hand expands in terms of scope and rigor of the analysis. Our study rigorously synthesizes and systematizes the existing literature adding the most recent primary studies to the analysis. The evidence base has considerably broadened since the review by Bruhn and Mc Kenzie (2014), not least as a consequence of the limited impact reported by previous studies. Furthermore, our study contrasts the main theoretical views on informality to assess whether the theories are empirically relevant and the employed meta-regression analysis techniques allow us to give a quantitative appraisal of the policies promoting formalization (Stanley and Doucouliagos, 2012). Additionally, we exploit the heterogeneity of the existing primary studies to assess the extent to which the impact of a considered formalization policy varies depending on the chosen formality indicator, the estimation method adopted, the characteristics of the population benefitting from the intervention, country differences, and other potential sources of bias. Unlike the existing qualitative reviews, our meta-analysis enables us to estimate the underlying impact of interventions on formalization after quantitatively accounting for study heterogeneities and potential publication bias. With the meta-regression analysis, we can rigorously disentangle the factors driving the reported impacts. To that end, we include all accessible studies available until June 2019. Our analysis rests on 842 estimates (representing the population of our analysis) from 27 econometric studies conducted by 49 researchers.

We jointly meta-analyse the impact of (i) costs reducing, (ii) benefit increasing, and (iii) enforcement increasing interventions that promote the formalization of informal firms. We

consider it high time to produce systematic evidence across interventions to guide policymakers towards the most effective policies.

The remainder of this paper is organized as follows. Section 2 contains a review of the literature and a brief introduction to the main theories about informality. Section 3 explains the data and empirical approach. The main findings from the meta-analysis are presented in section 4 and section 5 concludes.

3.2. Literature Review

The process of formalization is a multifaceted phenomenon that aims at the two main components of the informal economy, namely informal firms and informal employment (Ulyssea, 2018). The two processes of formalization of informal employment and firms are driven by different factors and therefore deserve to be explored separately. This study focuses on the formalization of informal enterprises.

When considering the decision of formalizing a business, we can distinguish at least two crucial moments, the start-up phase of an enterprise (formalization at extensive margin) and operating phase of informal firms (formalization at intensive margin). We focus on the formalization of the latter as we want to understand whether interventions affect the decision of switching formality status from informal to formal. Therefore, the analysis is limited to only one channel of impact of the considered interventions leaving other outcomes for future analyses. For instance, it is possible that policy reforms did not affected formalization of already operating businesses but stimulated firm creation implying that the decision of starting a business formally was triggered. Another implication of the focus of our analysis is that we excluded informal businesses that opt for exit: formalization interventions might push informal firms to quit their activities. This could result in a contraction of the informal economy. Moreover, we did not investigate the process of in-formalization or de-registration of the enterprises. For instance, a study by Díaz et al. (2018) reported that the distance from the tax office systematically increases the likelihood of enterprises to deregister.

Before, starting with the meta-analysis we briefly discuss the theoretical conceptualization of informal firms since it motivates the different policy interventions.

Informal firms: Four competing models

Four models dominate the theoretical literature concerning the decision of formalizing a business: (i) the exclusion model (De Soto, 2003 and 1990), (ii) rational exit model (Maloney, 2004), (iii) parasite model (Baily et al., 2006; Farrell, 2006 and 2004), and (iv) dual economy model (La Porta and Shleifer, 2014 and 2008).

In the exclusion model the high costs of registration and long bureaucratic procedures prevent the participation of some firms in the formal economy (De Soto, 2003 and 1990). Informal enterprises are excluded from engaging with the formal economy since they cannot afford formalization. The obvious resulting policy for promoting firm formalization is a decrease in the costs of formality. The exclusion model had great impact on policymakers including the World Bank; the World Bank promoted regulatory reforms aimed at decreasing direct costs and the time of formally starting up a business (Campos et al., 2018 and 2015; De Andrade et al., 2014; La Porta and Shleifer, 2014; Bruhn and Mc Kenzie, 2013). The World Bank's 'Doing Business Project' records reforms of business regulations implemented by 190 countries between 2006 and 2019. Out of the 3,517 reforms recorded in October 2019, 676 (19.2%) consist of simplifying registration procedures by cutting direct and indirect (time) costs. One-Stop Shop (OSS) programs are a resulting strategy for promoting firm formalization endorsed by the World Bank (Campos et al., 2018).

The implementation of OSS programs has been successful in decreasing the costs of formalization; nonetheless they had limited effects on informal firms (Campos et al., 2018 and 2015; De Andrade et al., 2014; Bruhn and Mc Kenzie, 2013). In some cases, these policies increased the number of firms registering their business. Yet, this increase was mainly attributable to the creation of new formal enterprises rather than to previously informal firms switching to formality (Bruhn, 2011; Mondragón-Vélez and Peña, 2010; La Porta and Shleifer, 2008; Klapper et al., 2006).

In contrast to the exclusion model, which associates formality mainly with excessive costs, the rational exit model incorporates both the costs and benefits of formalizing a business (Perry et al., 2007; Maloney, 2004). This model highlights that entrepreneurs undertake a cost-benefit analysis about the decision to formalize. Firms operate formally when the benefits of formalizing outweigh the costs. Policies should therefore aim at concurrently decreasing costs and increasing benefits of registration; possible actions range from tax

exemptions for newly registered firms, to credit facilitation and business development services.

In a completely different spirit, the parasite model argues that informal enterprises have a deleterious effect on economic growth since they decrease revenues by avoiding taxes and they unfairly compete with formal firms by saving on the costs of legalization. The parasite model ascribes the decision of (not) formalizing the business to the quality of the regulatory framework: enterprises operate informally due to the low level of enforcement and the costs of formalization (Baily et al., 2006; Farrell, 2006 and 2004). The main factors affecting formalization are the level of enforcement both actual and perceived. Interventions that are motivated by the parasite model increase the level of enforcement (Farrell, 2004). Policymakers can take actions that range from awareness campaigns about the legal risks of operating informally to a higher frequency of official visits and screenings.

Finally, in the dual economy model it is argued that informal and formal enterprises operate in two distinct spheres with informal activities not damaging formal ones (La Porta and Shleifer, 2014 and 2008). The model depicts informal activities as exhibiting different characteristics: informal firms are small, unproductive, run by low educated entrepreneurs, use capital and in particular external finance to a limited extent, and have different customers. In this framework the majority of the informal firms carries out unproductive survival activities that are likely to be crowded out following a Walmart theory of economic development that suggests growth is driven by highly productive firms leading informal enterprises to die out (La Porta and Shleifer, 2014 and 2008). Informal enterprises are considered not to be responsive to formalization policies. Therefore, promoters of the dual economy model suggest focusing on formal enterprises and not taking any particular action addressed to informal firms although they acknowledge that regulatory reforms might help those informal entrepreneurs who want to register their business.

Empirical literature about the impact of formalization policies

Following the theoretical debate on informal firms' formalization, in recent years researchers undertook great efforts to collect evidence about the impact of policy actions promoting formalization. Existing quantitative evidence derives from impact evaluations of policy reforms and pilot experiments reporting positive as well as negative findings depending on

the set-up of the intervention and the implemented study design (Bruhn and McKenzie, 2014).

Most micro-level studies analyse the effects of regulatory reforms cutting monetary and time costs (Goldszmidt et al., 2018; Rocha et al., 2018; Rothenberg et al., 2015; Aparicio, 2014; Bruhn, 2013 and 2011). The majority of the studies finds fairly small positive impacts on firm registration; only in a few cases the reduction in costs led to a significant increase in the number of businesses formalizing. For instance, in a study conducted in Brazil, Rocha et al. (2018) found that reducing taxes after having already cut costs further induces informal firms to formalize. Overall, the limited impact of cost reduction interventions challenges the exclusion model that argues that cost reductions stimulate business registration.

In an attempt to explore the rational exit model, other studies investigated the effects of increasing the benefits of business registration. For instance, the impact of monetary incentives on the decision to formalize has been addressed (Fandl and Bustamante, 2016; De Mel et al., 2013; Jaramillo, 2013). De Mel et al. (2013) conducted an experiment in Sri Lanka offering monetary incentives for registration and found a large positive impact. They further show that formalization rates change with the provided incentive amount. In contrast, other authors reported no significant change in firm registration after offering various monetary incentives (Fandl and Bustamante, 2016; Jaramillo, 2013). Yet, other studies explore whether different types of benefits could drive the decision of formalizing. For instance, Goldszmidt et al. (2018) explored the impact of a Brazilian microcredit offered by a government-owned development bank but found no effect on formalization.

Yet another group of studies investigated the parasite model by conducting field experiments with enforcement activities (De Giorgi et al., 2017; Galiani et al., 2017). De Giorgi et al. (2017) conducted an experiment in Bangladesh, where firms received a visit by a tax officer, and found a small increase in registration. Galiani et al. (2017) employed an experimental design to assess the impact of meetings with officers from the chamber of commerce on business licensing. The positive impact of the meetings lasted only for one year as many firms failed to renew their license.

Lastly, several experimental studies combine formalization interventions with information sessions and assistance meeting. This group of studies assesses whether providing information along with (one of the three above mentioned) interventions can foster

formalization (Kaiser and Menkhoff, 2018; Lenz, 2017; Cabrera et al., 2016; De Giorgi and Rahman, 2013). For instance, De Giorgi and Rahman (2013) show that firms are more likely to register if they receive information about procedures and benefits. Cabrera et al. (2016) report that one-on-one assistance meetings have higher impact on labour regulation compliance when combined with monetary incentives. Kaiser and Menkhoff (2018) conducted a field experiment in Uganda comparing the impact of active learning vis-à-vis traditional lecturing on the business literacy of small-scale retailers. The study combines benefits deriving from the training with information about the costs and risks of operating informally.

Overall, the micro-economic evidence shows contrasting outcomes for similar actions that took place in different countries. In some cases, scholars report different results even for the same reform; for instance, Piza (2018) demonstrated that the impact of the SIMPLES program in Brazil changed depending on whether the cut-off date in the analysis is November (Fajnzylber et al., 2011) or December (Monteiro and Assunção, 2012). Other studies show that the same intervention had different effects depending on the considered proxy for formality (i.e. whether it is registration, license, tax number, book-keeping). For instance, Aparicio (2014) reported that a reform simplifying registration procedures in Mexico had a positive and significant effect on firm formalization but did not affect other formality indicators such as book-keeping. Similarly, Díaz et al. (2018) found that, in Peru, business licensing affected labour formalization but not the other way around implying that entrepreneurs are more likely to formalize workers after having borne the initial costs of formalization.

A source of variation that is likely to contribute to the contrasting findings is the unobserved heterogeneity of informal firms (Floridi et al., 2016; Williams and Sahid, 2016; Berner et al., 2012; Grimm et al., 2012; Williams and Round, 2007). Berner et al. (2012) identify the existence of two types of informal activities: survival activities in the lower tier, and growth-oriented activities in the upper tier. Grimm et al. (2012) add a third category represented by informal operations on small scale to avoid larger competitors and government taxes. Floridi et al. (2016) and Williams and Said (2016) focus on the existence of hybrid forms of entrepreneurs consisting of firms neither wholly formal nor wholly informal. The heterogeneity of informal firms cannot be neglected when designing formalization policies; there might be covert characteristics that affect the decision of registering a business. Some

firms could be too small for bearing the costs of formalization or for benefiting from formalization.

The few studies in the empirical literature that address the problem of endogeneity show that formalization results might be driven by individual firm characteristics. Bruhn (2013) combines individual entrepreneur and business characteristics for identifying two different types of entrepreneurs showing that they are not equally responsive to a regulatory reform cutting the monetary and time costs of licensing. In similar spirit, Monteiro and Assunçao (2012) and Fajinzilberg et al. (2011) show that simplifying procedures for registering a business in Brazil had higher impacts on retailing firms compared to firms operating in other sectors.

Another interesting feature about the studies on firm formalization is that they are implemented against the background of large differences in institutional arrangements. In our analysis we address the role of the regulatory environment, property rights and corruption perceptions in the countries where the primary studies were implemented.

In short, since the existing studies present a large variety of approaches, results and background conditions, we consider it high time to systematically consolidate and assess the overall impact of the different policies. Furthermore, we want to exploit the heterogeneities across policy interventions and country contexts to assess which theory of business formalization best explains the data.

3.3. Methodology

We collected the relevant primary studies from the literature following the population-intervention-comparison-outcome-context (PICOC) protocol provided by Petticrew and Roberts (2008); for the meta-analysis we applied the meta-analysis guidelines by Stanley et al. (2013). The PICOC protocol was adopted as it fits well for policy-oriented systematic reviews. Our *population* consists of informal firms; the considered *interventions* are various policies to stimulate the formalization of informal firms; *comparisons* between a treatment and a control group can be made and the considered *outcomes* range from registration, to license, and tax number; the *context* is worldwide, although we found only studies from Latin America, Asia, and Africa. We adopted a broad definition of informal firms that includes the most popular proxies for formality: all firms that are not registered with the competent

authority or those enterprises operating without license or firms without a tax number in contexts where it is part of the registration process (for instance in Brazil and in Peru). Additionally, we include other indicators of formality as adopted by the selected studies, for instance payment of social protection. To cover the existing literature as exhaustively as possible, we adopted several queries and alternative strategies for retrieving relevant and accessible studies. We started with an internet search using queries that consisted of the following keywords or combinations thereof: "formalization, registration, reform, or policy; informal or unregistered; and firms or enterprises". As a further search strategy, we used synonyms of the terms adopted in the queries. Since these simple queries resulted in a large amount of possible hits, we employed *allintext* and *allintitle* before the query to limit the search to those articles using the exact words of the query in the text (*allintext*) or in the title (*allintitle*); for instance: "*allintext: formalization firms*". A first hit using the keywords "*informal firms" AND "formalization"* in the Google Scholar database retrieved 1,480 results. Other keywords retrieved fewer results, for instance *"informal enterprise formalization"* retrieved 461 results; or *"enforcement" AND "firms formalization"* provided 73 results; while using *"entry cost" AND informal firms"* retrieved 162 results. Appendix 1 provides the complete list of keywords adopted for searching the studies. We included studies published until June 2019. We conducted two rounds of search: the first round includes studies accessible until June 2018; the second round took place in June 2019 and thus covers articles available until June 2019.

Selection of studies and coding have been conducted by two researchers who independently worked on the same sample and then compared their results to reduce bias due to human error. We searched potential studies using three main databases: Google Scholar, Scopus, and the World Bank Open Knowledge Repository. The collection of the studies followed two stages: internet search and hand searching. Hand searching was added to the internet search to include references that were found in the studies selected in the first stage.

We found 126 articles that seemed to satisfy our criteria. Among the 126 studies initially identified, none of them dates before 1992, 73.8% (93) came out after 2010. Hence, the empirical literature on firm formalization has a relatively recent history compared to the broader literature on the informal economy. This is not surprising since dualist models dominated the first two decades of the debate and they assumed that the informal economy was likely to disappear over time; only after the realization that the dualist view was not

capturing the phenomenon of informality increased attention was paid to formalization processes.

After having collected the potential primary studies, the review proceeded with the selection of articles satisfying the inclusion criteria. First, we searched for relevant information contained in the abstract, introduction and conclusion of the identified potential studies. When we could not find information concerning effects on formalization, we screened the text using the command *find* and typing keywords such as registration, formalization, or license. We identified 92 articles satisfying the eligibility criteria, and 34 ineligible articles. The ineligible studies have been excluded as they explore features different from the objective of our analysis: the majority of the excluded studies focuses on formalization processes within large enterprises (i.e. giving formal structure to a company and formal rules for regulating internal relations between employees); other studies focus on business management features such as the provision of web services. Next, we inspected the 92 potential studies concerning their data, considered outcomes, and methods adopted leading to the identification of 34 studies. The main reason for excluding articles is that they do not provide quantitative evidence. Moreover, other studies have been excluded because they analyse outcomes different from formalization of enterprises such as employment creation and profitability. Three of the 34 identified studies only contained descriptive statistics that are not suitable for the meta-analysis. Another two studies were dropped since they were unpublished or previous versions of already selected articles reporting identical results. Two studies were excluded because of missing relevant information such as the standard errors or the number of observations; we contacted the authors of the two articles but could not obtain the requested data. Appendix 2 provides the full list of studies excluded after title and abstract screening; we specify the reasons for exclusion and provide some indication of the results. Appendix 3 synthesizes the selection process using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram.

It is not uncommon in meta-analyses to keep those working paper versions along with the published papers that report different coefficient estimates in moving from one version to the next (Polanin et al., 2016; Polanin and Pigott, 2015). We comply with this approach but gauge the sensitivity of our results in a robustness check.

The meta-dataset

As already introduced, the heterogeneity in formalization policies and evaluation designs is considerable and therefore it is not a straightforward task to construct the dataset for the meta-analysis at hand. We took the following approach: Concerning study design, the selected articles adopted two types of evaluation approaches: randomized controlled trial (RCT), and quasi-experimental impact assessment. Furthermore, we clustered the interventions into three types of policies, i.e. (i) cost reducing, (ii) benefit enhancing, (iii) enforcement. With each type of policy we conduct sub-sample analyses and aim at testing the empirical validity of the competing theoretical models within the limits given by study availability.

The identified primary studies can be summarized mathematically in the following baseline model:

$$Y_{it} = \alpha + \beta_1 T1_{it} + \beta_2 T2_{it} + \beta_3 T3_{it} + \beta_4 X_{it} + \varepsilon_{it} \qquad (1)$$

where *i* denotes firm, *t* time, *Y* the formalization outcome, and *T1*, *T2* and *T3* are indicators for being assigned to policy 1 (cost reducing), 2 (benefit enhancing) or 3 (enforcement), respectively. *X* represents a vector of control variables and ε is the remaining error term.

The heterogeneity of the identified studies is also reflected in the outcome variables used to proxy for formalization. Most articles adopt either registration or licensing, while a few papers use tax registration, tax payment or provision of social security. We divided the outcome variables in three groups corresponding to registration, license, and other indicators. The main difference between registration and license is that the latter is only temporary and needs to be periodically renewed; thus, we can interpret licenses as indicator for the short-term decision to formalize, whereas registration can be understood as a proxy for the decision to formalize in the medium to long run. In this respect it is important to recognize that the proxy adopted for assessing formalization depends on the legal framework at the national and local level.

Next, we did not only extract information on outcome characteristics but also on sample and data features, estimation techniques, the employed specification, and publication characteristics (Table 1). Data characteristics include the number of years of data used, the number of observations, firm type as defined by the World Bank (micro, small, or medium firms), and geographical region (we found studies from Latin America, Asia, and Africa).

Next, we included information concerning the estimation techniques. We found various types of empirical models: (i) plain vanilla ordinary least squares (OLS), (ii) models with year fixed-effects, (iii) models with sector fixed effects, (iv) models with market fixed effects and (IV) other techniques, such as two-stage least squares. As specification features, we include an indicator whether the regression controls for gender, age, education, and the size of the household of the business owner.

In addition, we have also collected information about interaction terms and provided an indicator for the presence of these. Meta-analysts employ two approaches to deal with estimates from interacted variables: Some use the delta method to evaluate these effects at sample means of the interacted variables (Havránek et al., 2016). Others add a binary variable in the dataset (Demena and Bergeijk, 2017). We employ both these approaches: First, we use the delta method to evaluate the reported estimates and to approximate the corresponding standard errors, next we include a dummy variable to indicate that coefficients from interaction variables form part of the analysis and finally we exclude the interaction terms to conduct a separate meta-analysis of the linear terms. In principle, one could also apply a separate meta-analysis for the interaction terms, but in our case the percentage of studies reporting interaction terms is fairly small and thus would not permit for a proper meta-analysis.

The publication characteristics include the year of publication, publication status (published vs. unpublished), number of citations, and journal impact factors. We included the year of publication to assess whether there is a time trend in the findings reported by the studies; additionally, a dummy for publication status is introduced to assess if publication in a peer-reviewed journal is systematically linked with the reported coefficients. We also control for the quality of the primary studies using the number of citations in Google Scholar and the journal quality using the recursive impact factor from RePEc. The former is the richest source for citation counts and the latter covers almost all rankings for both working papers and peer-reviewed articles.

Lastly, we included country characteristics that may further contribute to explaining the heterogeneity in responses to formalization policies.[2] Specifically, we included in our model

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[2] We thank an anonymous referee for this valuable suggestion.

the Economic Freedom Index (Fraser Institute), and the Corruption Perception Index (CPI) reported by the World Development Indicator (WDI).[3]

[Table 1]

The majority of the collected primary estimates study registration (41%) and license (43%) as indicators of formality; the remaining estimates assess tax registration, tax payment, and the social protection number. Concerning the policy type, the majority of the estimates comes from studies assessing the impact of reducing the costs and time needed for registration (78%). Most studies assess micro (up to five employees), and small (between five and 20 employees) enterprises. Less than one in five estimates include all types of micro, small and medium enterprises (MSMEs). More than half of the total observations in our dataset comes from studies conducted in Latin American countries, followed by Asia, and Africa. The great majority of the estimates stems from regressions that include market fixed effects (74%) and nearly half of the estimates result from randomized experimental designs. Approximately two-thirds of the reported estimates are published in peer-reviewed journals. Almost all the studies were published in the last 10 years: the oldest study was published in 2006 and the most recent in 2018.

Empirical approach

The empirical approach we employ is based on the existing MAER-Net guidelines provided by Stanley et al. (2013). The assessment follows three stages: First, we present the overall average effects without accounting for publication bias and the nature of heterogeneity in the reported estimates. In line with seminal contributions in meta-regression analysis (Havránek et al., 2016; Doucouliagos, 2005), we compute the partial correlation coefficient (PCC) to make the reported estimates comparable across studies. We derive the PCC as:

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

where PCC_{rs} denotes the partial correlation coefficient between a policy/regulatory change and formalization. We measure the association in terms of direction and strength of these two variables holding other variables constant; r and s denote the reported regression

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[3] We attempted to also use indicators from other databases (such as the World Values Survey or the International Country Risk Guide). Yet, we could not find data for all countries under study and therefore decided to not include information from these two sources.

specification and the primary study, respectively; t_{rs} represents the estimate's *t*-value and *df* are the associated degrees of freedom for each regression specification used in the primary study. Using the PCC, an arithmetic mean is computed with the inverse of the variance as weights.

In the second step, we use both visual and statistical analyses to investigate the possibility of publication bias and the so-called, overall genuine empirical effect. We employ the Funnel-Asymmetry Test (FAT) and Precision-Effect Testing (PET) for performing the meta-regression analysis. We start with the funnel plot, a scatter diagram showing the estimated effects on the horizontal axis and their precision on the vertical axis. Precision is usually indicated by the reciprocal of the standard error (Demena, 2017; Iršová and Havránek, 2013; Stanley and Doucouliagos, 2012 and 2010). This graphical analysis of publication bias is subjective as it depends on visual inspection. In addition, we use a formal statistical approach derived by Stanley (2005). The test assesses whether the estimated effects are randomly distributed across the primary studies. Formally, we estimate:

$$PCC_{rs} = \beta_0 + \beta_1 SE_{pccrs} + u_{rs} \qquad (3)$$

where PCC_{rs} is the measure of formalization efforts computed for the rth regression specification and the sth study, SE_{pccrs} denotes its standard error, β_0 the overall genuine effect and β_1 publication bias. The underlying intuition of Eq. (3) is that as the sample size increases and thus the quantity of available information increases, SE_{pccrs} will approach zero (Stanley, 2005). According to Roberts and Stanley (2005) this implies that for estimates derived from larger sample sizes, PCC_{rs} will approach β_0. Consequently, in the absence of publication bias the overall effect should vary randomly around β_0 irrespective of SE_{pccrs} (Stanley and Doucouliagos, 2010; Doucouliagos and Stanley, 2009).

Note that Eq. (3) is likely to be measured with heteroscedasticity and within-study dependence. To reduce the first problem, we divide equation (3) by *SE_{pccrs}* to adjust for potential heteroscedasticity. Stanley and Doucouliagos (2012) suggest as adjustment the inverse of the variance of the estimated PCC_{rs} and thus Eq. (3) can be expressed as weighted least squares (WLS) model:

$$\beta_1 + \beta_0(1/SE_{pccrs}) + e_{rs} \qquad (4)$$

where t_{rs} is the t-statistic of the PCC derived from PCC_{rs}/SE_{pccrs}.

To address the second challenge associated with Eq. (3), i.e. the within-study correlation, we employ the approach chosen by the majority of the meta-analysts and apply study-level clustered standard errors. However, some studies show that standard adjustment for clustering poses an additional statistical problem when the number of clusters is small/insufficient. Thus, we also employ an alternative to simple clustering making use of the wild bootstrap clustering that was derived for clustering with a small number of clusters.

As third step, after having detected potential biases and heterogeneity, we explore the underlying sources of heterogeneity to explain the potential reasons behind the divergent results in the reported estimates. In other words, Eq. (4) measures the average effect across the various econometric designs and publication characteristics. But in the final model we include potential moderator variables to disentangle their contribution to the average effect. The moderator variables are as discussed in section 3.1 and listed in Table 1. The empirical model looks as follows:

$$t_{rs} = \beta_1 + \beta_0(1/SE_{pccrs}) + \alpha_k X_{krs}/SE_{pccrs} + e_{rs} \qquad (5)$$

where X represents the matrix of moderator variables with the inverse of the variance as weights, α_k is the vector of the associated coefficients and k refers to the specific category of the moderator variable.[4]

Another empirical concern of estimating Eq. (5) is multicollinearity because of the large number of moderator variables that are presented in Table 1. Following the MAER-Net guidelines provided by Stanley et al. (2013), we use the general-to-specific (G-to-S) approach. The procedure starts with including all 25 potential moderator variables in the general specification (Eq. (5)). Next, it reduces to a specific/reduced specification by systematically removing insignificant variables, one at a time, until only significant variables remain. In doing so, we exclude 11 moderator variables that are statistically insignificant at least at the 10% level. The joint F-test for these 11 moderator variables is F(11,815)=0.57 (*p*-

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[4] Note that we use multiple reported estimates from the same study. This kind of data dependence can be modelled in a two-level model, extending Eq. (5) as follows:

$$t_{rs} = \beta_1 + \beta_0(1/SE_{pccrs}) + \frac{\alpha_k X_{krs}}{SE_{pccrs}} + \zeta_s + e_{rs} \qquad (6)$$

where, the subscript r is the regression specification or estimate from study s and k refers to the specific category of the moderator variable, whereas ζ_s is the study-level random effect (random intercept). In this framework or modelling, estimates, which are level 1, are clustered and nested within studies, which are level 2. Our notation is akin to the one by Ugur et al. (2020), Demena and Bergeijk (2017), Havránek and Iršová (2011), Doucouliagos and Stanley (2009), and Disdier and Head (2008). Thus, formalization estimates that are reported as a result of the same primary study are nested within the study while the estimates are modelled to differ between studies.

value=0.854) suggesting that they are not only individually but also jointly equal to zero. The joint test for the remaining 14 moderator variables included in the model rejects the null hypothesis of a zero joint effect, $F(14, 826)=18.53$ (p-value=0.000). In addition, using the G-to-S approach allows us to reduce the potential loss of degrees of freedom on top of the potential multicollinearity concern. The procedure is widely applied in recent meta-analyses. To further shed light on the issue of multicollinearity, we have also provided the correlation matrix in Appendix 7.

To gauge the robustness of our findings, we employ two meta-regression models: (i) the clustered ordinary least squares (CDA) and (ii) the mixed-effects multilevel (MEM) model. We prefer the MEM approach as it accounts for both the between and within-study dependence (Doucouliagos and Laroche, 2009; Bateman and Jones, 2003). The relevance of accounting for between-study dependence via the MEM model is widely documented in existing meta-analyses (van Bergeijk et al., 2019; Demena and Bergeijk, 2017; Havránek et al., 2016). Finally, we conduct likelihood ratio (LR) tests to check if the MEM model is preferable to other alternatives, for instance WLS, and the tests in all cases support the multilevel model we adopt. Thus, we present the CDA approach as baseline result and augment it in a next step with wild bootstrapped standard errors (Cameron et al., 2008). Then we introduce the MEM model; in interpreting our results we give most weight to the most rigorous model with MEM.

3.4. Main findings and discussion

Genuine effect and publication bias

The first and most striking result of the meta-analysis is that the considered interventions had hardly any impact on the formalization of informal firms. This finding is in line with Bruhn and McKenzie (2014). Table 2 presents summary statistics of the overall impact of the various reforms and actions taken together. The simple average effect of the formalization efforts is 0.044 with a 95% confidence interval of [0.038; 0.051]. This implies a positive and statistically significant impact, while at the same time indicates almost no practical significance: Applying the meta-analysis guidelines by Doucouliagos (2011), a meta-regression coefficient is small if it is at most 0.07, it is of medium size if it ranges around 0.17, and large if it is at least 0.33. The summary statistics using inverse variance weights suggest a similar picture.

[Table 2]

Thus, at first glance, the data seem to suggest that the dual economy model best explains the decision of non-formalizing the business since the model argues that informal firms are not responsive to regulatory reforms. However, this simple meta-coefficient has not yet taken into account publication bias and other sources of bias.

Next we investigate whether the lack of a practical impact is affected by publication bias. We start with the visual approach making use of a funnel plot. In the absence of publication bias, the plot should be symmetrical; an asymmetrical plot suggests publication bias. We use the PCC on the horizontal axis, and the logarithm of the precision of the effect size on the vertical axis (Figure 1). The plot is slightly skewed to the bottom right of the diagram suggesting the presence of an upward bias that is in line with the small positive impact reported in Table 2.

[Figure 1]

As elaborated, the visual representation of the publication bias might be subjective and thus misleading. We therefore perform FAT and PET analyses. Table 3 presents the results. Across econometric methods, we consistently find upward bias as indicated by the positive and highly statistically significant bias coefficient estimates that range between 2.085 and 2.448. The FAT test unanimously suggests publication bias and the PET test indicates a sign reversal for the genuine effect. Across specifications the effect is negative, but it is only statistically significant in two specifications. For our preferred model (MEM), the PET test implies the absence of a significant genuine effect showing that once we control for bias the formalization policies had no impact. However, as shown by the Q-test and the I^2 test reported in the note to Table 3, we need a multivariate meta-regression analysis (MRA) that controls for other sources of heterogeneity in the reported estimates to identify what drives the lack of an overall genuine effect (compare Section 3.1).

[Table 3]

Yet, before we move to the multivariate analysis, an important concern is whether the above results are driven by the number and composition of primary studies included in the analysis. Therefore, we analyse whether our results are sensitive to the inclusion or exclusion of any specific, single study. We conduct a Jack-knife experiment re-running the same regressions as for the above FAT and PET tests but excluding one study at a time. To better visualize the

reported estimates, we report only results using the CDA and MEM model. Table 4 presents the results. The two test results emulate our main findings presented in Table 3. The results are not only comparable and stable in terms of statistical significance, but also in magnitude and direction of the coefficients. This demonstrates that our results are not driven by the influence of any single study.

[Table 4]

Accounting for heterogeneity across studies: Multivariate analysis

As discussed, the findings presented so far might be driven by other sources of heterogeneity. In a multivariate analysis we explore these (Table 5). Our discussion of the main findings is based on the preferred MEM model presented in Column 4 of Table 5. Importantly, once we control for the research design and methods of the studies, we detect positive (upward) publication bias in our preferred model. This finding is consistent with the slightly skewed funnel plot (Figure 1) and the positive coefficient estimates of the bivariate FAT (Table 3).

The findings from the multivariate analysis further show a negative and statistically significant genuine effect. The result is consistent with the bivariate PET in terms of direction, but becomes significant showing that the overall formalization efforts are in vain. This indicates that on average the beneficiaries (treatment group) display lower formalization rates compared to the control group. For instance, the number of informal firms switching formality status decreased after the introduction of a reform (Bruhn and McKenzie, 2013); or entrepreneurs display lower formalization rates depending on characteristics such as gender, and education (Benhassine et al., 2018; Campos et al., 2018). Study heterogeneity seems to be the root cause for not identifying an overall positive impact suggesting that formalization results as depicted across studies critically depend on the choice of the research design and the methods employed in the primary studies. In light of this, the true effect across the studies depends not only on a single PET, but also many potential moderator or heterogeneity variables (see also Demena and Bergeijk, 2017; Stanley and Doucouliagos, 2012). In what follows, we discuss important moderator variables in more details.

[Table 5]

We start with assessing the coefficient associated with PET once we control for study heterogeneity. While the coefficient estimate cannot be interpreted at face value, it gives a

first indication of the resulting heterogeneity-adjusted genuine effect that we will calculate for a given set of covariates (section 4.3). Across empirical specifications we find a statistically significant and large effect in absolute terms associated with PET (Table 5). Yet, the sign suggests that once we control for study heterogeneities the overall effect of formalization efforts is likely to be negative. In addition, we find substantial upward publication bias as already identified in the bi-variate analysis. To identify where these effects come from, we address the role of the different moderator variables starting with the data characteristics. We focus on the MEM results (Table 5, Column 4). The effects of formalization vary depending on the type of firms targeted: the impact on micro-enterprises is about -0.035 (p-value<5%) as compared to any MSME implying a small negative effect according to Doucouliagos (2011). This could be taken as indication that micro-enterprises are less responsive to formalization policies. It is worth recalling the heterogeneity of the informal sector and the existence of at least two types of informal enterprises: namely survivalist and growth-oriented entrepreneurs (Berner et al., 2012). It is plausible that informal micro-enterprises are mainly engaging in survivalist activities and such survivalist micro-enterprises have too little capital for shouldering the costs of registration or they are too small for perceiving the benefits associated with formalization and can hide more easily compared to small market-oriented firms.

Next to the target population, another source of heterogeneity is the length of the covered time span. The reported effects are more positive and significant the longer the time span of the primary study (0.003, p-value<10%). This suggests the relevance of time for the impacts to materialize and appears to be an important moderator variable in this field of research. In terms of policy implications, policymakers should expect that the effects of formalization interventions are unlikely to be immediate.

Turning to the estimation characteristics, coefficient estimates derived from models employing year fixed effects are associated with a significantly negative effect (-0.054, p-value<10%). Similarly, controlling for sector specific effects in the primary analysis is also associated with a negative effect suggesting that rigorously employing fixed effects in the empirical analysis to account for confounding factors reduces the impact attributable to the formalization interventions. In turn, the findings show that models including market or location fixed effects tend to systematically display larger effects (0.034, p-value<10%). This implies that the market and location of the enterprise are important determinants for the

decision to formalize; for instance, enterprises operating in the proximity of regulatory authorities might be more likely to formalize after the intervention.

A further source of heterogeneity is the study design: findings from randomized experimental designs consistently show smaller effects (-0.070, p-value<5%) compared to studies that use quasi-experimental designs. This finding highlights the strength of RCTs in only causally attributing the treatment effect free from confounding factors whereas non-experimental designs likely suffer from bias. This is in line with the results presented in the review by McKenzie and Bruhn (2014).

The multivariate analysis further indicates that policies that increase the benefits of formalization are most successful. The associated PCC is 0.057 larger relative to interventions that only cut registration and other costs. This finding is in line with studies reporting that the majority of informal firms do not register because they do not perceive benefits from formalization (De Andrade et al., 2014; De Mel et al., 2013). Thus, the provision of benefits such as improved access to credit, greater scope of marketing, access to advertisement, as well as participation in government contracts and programs is most likely to be successful. These results support the rational exit model as compared to the exclusion model because the former indicates the need for (immediate) advantages of registration. Nonetheless, the effect associated with interventions increasing benefits is too small for arguing that the rational exit model best explains the decision of formalizing a business, especially given that the overall PET effect remains negative after adding the differential impact associated with benefit interventions. In this perspective, the limited impact might suggest that the right type of intervention has yet to be found.

Concerning the explicit specification characteristics, if registration is chosen as formalization indicator the studies are most likely to report significant positive effects compared to other forms of formalization such as tax or social protection payments. The coefficient associated with registration is 0.046 and statistically significant at the 1% level.

Furthermore, the reported demographic characteristics of the enterprise owners, such as age and education also have a systematic effect on the formalization results. For these two moderator variables, the effect is negative, implying that primary studies controlling for education and age tend to report smaller formalization effects.

Next we turn to the publication characteristics. Published articles (peer-reviewed studies) are less likely to report a positive impact of the assessed formalization policy on the decision of informal firms to formalize (on average lower by -0.051). In turn, studies with a higher number of citations are associated with higher PCCs implying that studies reporting larger effects have more visibility. The publication year is positively associated with higher effects (on average higher by 0.066) suggesting that more recent studies are more likely to report about refined and more successful interventions.

Finally, we note that although our focus is the heterogeneity reported by the primary studies, there are a number of potential country-level determinants that also affect the decisions of firms to operate formally or informally. The previous literature has shown that the institutional framework plays a crucial role in understanding the decision of registering a business (Webb et al., 2014; McMullen et al., 2008). For instance, informal activities might flourish in countries with a heavy bureaucratic burden (Loayza et al., 2005) or with high levels of corruption (Friedman et al., 2000; Choi and Thum, 2005) and less economic freedom (Saunoris and Sajny, 2017; Sweidan, 2017). Column 9 of Table 5 includes country-level characteristics that can be associated with the decision to formalize. The aggregate index of the degree of economic freedom is associated with a positive impact on informal firms' formalization (on average higher by 0.050, p-value<5%). We also include the CPI index to assess whether the perception of corruption is related to the decision of formalization. The perception index ranks countries and territories based on how corrupt their public sector is perceived to be. Although the CPI is negatively associated with formalization, the effect is not statistically significant. The limited correlation between corruption perceptions and formalization responses may be explained by the fact that the informal economy and corruption are complementary activities in many low-and-middle income countries (Dreher and Schneider, 2010). In Column 10, we introduce the sub-components of the degree of economic freedom index as compiled by the Fraser Institute. The results show that two sub-components are likely to increase responses to formalization interventions, namely (i) regulation and (ii) the legal system and property rights (on average higher by 0.017 and 0.049, respectively; p-value<5%). In other words, firms are more likely to formalize when policies are implemented in the presence of a better regulatory environment and a better legal system and property rights' protection. This finding is consistent with other studies identifying economic freedom, and particularly the legal system and property rights, as a predictor of formality (Saunoris and Sajny, 2017; Baicu and Corbu, 2016). One possible

explanation is that better property rights encourage individuals to invest and operate within the formal market as they see a higher probability that transactions are secured (Britton et al., 2004). Yet, note that our sample consists only of 11 countries and therefore we consider the findings with respect to the country institutional and corruption environment as merely indicative.

Comparing the MEM results with the basic CDA and wild-bootstrapped CDA we find that the identified effects tend to be similar in magnitude and statistical significance (except the statistical significance disappears for the publication bias and the benefit intervention). We also provide results of the fixed-effects model with precision as weights (FE-WLS) and the findings are similar with the exception that all the specification characteristics and RCT lose significance and the coefficients associated with the number of years of data used and the year fixed-effects change sign. This could be due to the fact that in the FE-WLS it is the within-study heterogeneity only that matters as between-study heterogeneity is assumed to be zero (Stanley and Doucouliagos, 2017 and 2015) and in our case there is significant statistical dependency between studies (see Table 3).

Further analyses and robustness checks

In addition to the analyses conducted for the sample as a whole, we also subdivided the sample and assessed the impact per policy type. A detailed discussion can be found in Appendix 8, the related Tables are in Appendix 9. The subsample analyses provide further evidence in favour of policies that increase the benefits of formalization. Yet, the number of observations assessing benefit interventions is only 109 and therefore, this finding has to be treated with some caution. Since we have enough reported estimates presenting the results of interventions associated with reducing the costs and time of registration, we also apply a separate multivariate meta-analysis for the subsample of these studies. The results are reported in Column 5 of Table 5, corroborating the corresponding findings for the full sample (Column 4).

In addition, we estimated the underlying genuine effect from the multivariate MRA conditional on the identified sources of heterogeneity and conducted robustness tests related to the quality and design of the primary studies, data type, outliers and model uncertainty. Finally, we present additional analyses excluding working papers with different results than the published version.

In a nutshell, the further analyses and robustness tests support our main findings identifying the absence of practical impacts of the studied formalization policies.

3.5. Conclusions

The empirical literature providing evidence on the formalization of informal firms is limited and recent. We retrieved the relevant studies using the PICOC protocol (Petticrew and Roberts, 2008), and analysed the studies performing a meta-regression analysis based on the MAER-Net guidelines (Stanley et al., 2013). A total of 27 primary studies was identified and empirically assessed for the impact of policy interventions on the formalization of informal firms. The first study was published in 2006 suggesting that only recently scholars and policymakers have started assessing quantitatively which type of intervention works best to achieve the formalization of informal firms. Therefore, we consider it important to consolidate the existing evidence and derive some first lessons learned. If the current trend in testing formalization interventions continues, we can expect that the number of studies per year increases further and the topic gains further importance. This is desirable since there are evident gaps: currently the literature on formalization interventions mainly focuses on Latin America (63%) and to some extent on Asian countries (25%).

What can be concluded so far? The meta-analysis reveals that currently a wide range of policies and interventions is put in place to promote the formalization of informal firms. The interventions are (i) cost and time reducing, (ii) benefit and (iii) enforcement increasing. At most we found a very limited overall genuine effect across all three types of interventions suggesting that in practical terms the interventions implemented so far had hardly any impact on firm formalization. At a first glance, this finding suggests that informal firms are insensitive to formalization policies, which is consistent with theoretical considerations such as the dual economy model (La Porta and Shleifer, 2014 and 2008). However, when accounting for the different types of formalization policies, the results suggest a bit more of a nuanced picture: interventions increasing the benefits of formalization tend to have positive effects compared to the other two types of interventions.

In short, we found a positive and significant, but small uncorrected weighted average effect of 0.004. In the bivariate analysis, our preferred model suggested the absence of any impact, but uncovers that upward publication bias is a concern. The multivariate analysis suggests a negative and significant true effect of -0.147 and substantial upward publication bias. In the

best-practice approach, the overall underlying genuine effect from the multivariate MRA conditional on the identified sources of heterogeneity resulted in a statistically insignificant effect of formalization. The findings are robust to various tests and different regression methods.

The multivariate analysis identifies additional sources of heterogeneity such as the beneficiary population and the type of formality indicator. Thus, although we found no impact of the studied policies on informal firms' formalization, we are reluctant to conclude that the data support the theoretical predictions of the dual economy model since the identified sources of heterogeneity have to be taken into account. With regard to the genuine effects associated with policies increasing the benefits of formalization, the effects are too small and the primary studies are too few for concluding that the rational exit model (Perry et al., 2007; Maloney, 2004) best explains the decision of formalizing a business. Different theories of informality could apply to different types of entrepreneurs. The recent literature on micro and small firms in developing countries is taking these differences into account and identifies and targets entrepreneurs, who are most likely to benefit from interventions (Benhassine et al., 2018; McKenzie, 2017). Lastly, after accounting for country differences the analysis indicates that policy efforts aiming at stimulating firms' formalization are more effective in countries with higher economic freedom, better legal systems and property rights.

Based on these meta-results we can draw the following initial conclusions for policymaking: First, the limited impact of policies promoting formalization challenges the formalization paradigm and underlines the need for elaborating new policies that might even be different from systematic formalization. The current evidence suggests that if we subscribe to the principle of promoting informal firms' registration, policies increasing benefits seem most promising. Second, concerning the different types of formality indicators, the meta-analysis indicates that interventions are more likely to achieve formalization in the form of firm registration compared to firm licensing and tax number application. This implies that firm registration is likely not the most suitable tool for promoting tax compliance and increasing tax revenues. Third and most importantly for governments that aim at implementing formalization policies at large scale, the type of the target population plays a key role in determining the success of the interventions: policies targeted to micro-enterprises are less likely to achieve formalization compared to policies including small, and medium enterprises

implying that governments seeking the formalization of some of their informal sector should engage in a careful targeting exercise.

Overall, we conclude that the current evidence suggests that policymakers should focus on interventions that increase the benefits of formalization and, if possible, try to design new policies that go beyond exclusively aiming for the formalization of informal entrepreneurs. A first step could be to strengthen the existing links between the formal and informal economy (Guha-Kasnobis et al., 2007). In this perspective, involving informal actors in the policymaking process could be a feasible choice for designing tailored policies and for elaborating innovative strategies addressed to informal entrepreneurs. In similar vein, new policy reforms and additional field experiments testing innovative interventions might help to bring further light to the shadows of informality.

Tables and Figures

Table 1. Definition and descriptive statistics of the collected variables

Variables	Definition	Mean	Std. Dev.
Outcome Characteristics			
E	Formalization effect size	0.03	0.52
SE	Standard error of effect size	0.06	0.34
TSTAT	Estimated t-stat of effect size	2.26	5.79
PCC	Partial correlation coefficient	0.04	0.10
PCCSE	Standard error of PCC	0.02	0.01
No. Exp.	Number of explanatory variables included	22.16	26.71
Data Characteristics			
No. time	The number of years of data used	3.55	2.39
No. obs.	Logarithm of number of observations	8.15	1.59
Micro firm	=1 if data come from micro firms (any micro, small or medium firms as excluded category)	0.52	0.50
Small firm	=1 if data come from small firms (any micro, small or medium firms as excluded category)	0.30	0.46
Latin America	=1 if data come from Latin America (data from Asia as excluded category)	0.63	0.48
Africa	=1 if data come from Africa (data from Asia as excluded category)	0.12	0.32
Estimation Characteristics			
OLS	=1 if estimation method is OLS, (two-stage least squares, probit and others as excluded category)	0.57	0.50
Year FE	=1 if year fixed effects are included, 0 otherwise	0.20	0.40
Sector FE	=1 if sector fixed effects are included, 0 otherwise	0.30	0.46
Market	=1 if market or location fixed effects are included, 0 otherwise	0.74	0.44
Randomized experiment	=1 if randomized experimental design (quasi-experimental designs as excluded category)	0.49	0.50

Intervention Policy

Benefit	=1 if intervention is providing benefit (reducing cost and time as excluded category)	0.13	0.33
Enforcement	=1 if intervention is threat of punishment (reducing cost and time as excluded category)	0.09	0.29
Information	=1 if information is provided, 0 otherwise	0.37	0.48

Specification Characteristics

Registration	=1 if formalization indicator is registration (social protection and other indicators as excluded category)	0.41	0.49
License	=1 if formalization indicator is license (social protection and other indicators as excluded category)	0.43	0.50
Gender	=1 if gender of the business owner is included, 0 otherwise	0.39	0.49
Age	=1 if age of the business owner is included, 0 otherwise	0.38	0.38
Education	=1 if education of the business owner is included, 0 otherwise	0.33	0.47
Household	=1 if specification controls for household size, 0 otherwise	0.19	0.36
Interaction terms	=1 if coefficient comes from interaction variables, 0 otherwise	0.22	0.42

Publication Characteristics

Publication year	Logarithm of the publication year of the study (base, 2008)	2.29	0.42
Published	=1 if published in a peer-reviewed journal, 0 otherwise	0.58	0.49
Study citations	Logarithm of citations in Google Scholar per age of the study, till July 2019	1.75	0.97
Journal impact	Recursive journal impact factor from RePEc	0.46	0.55

Country Characteristics

Economic freedom	The degree of economic freedom of the country - Fraser Institute	6.28	0.35
CPI	The corruption perception index of the country - WDI	35.80	6.83
Regulation	Regulatory restraints of the country - Fraser Institute	5.51	1.14
LSPR	Legal System & Property Rights of the country - Fraser Institute	4.33	0.58
Size of Government	The size of the government the country - Fraser Institute	6.40	0.87

Table 2. Estimates of the overall entry reforms and related policy actions (PCC)

Method	Effect size	S.E.	95% confidence interval	
Simple average effect[a]	0.044	0.003	0.038	0.051
Weighted average effect[b]	0.004	0.001	0.002	0.007

Note: [a] arithmetic mean of the PCC, [b] inverse variance as weight.

Table 3. Bivariate meta-regression analysis for the FAT-PET

	All studies					
Variables	(1)		(2)		(3)	
	CDA		Wild bootstrapped		MEM	
	Coefficient	*t*-value	Coefficient	*p*-value	Coefficient	*t*-value
Bias (FAT)	2.448***	3.51	2.448***	0.00	2.085***	3.31
Genuine effect (PET)	-0.002**	-2.71	-0.002**	0.06	-0.002	-1.05
Observations	842		842		842	
Studies	27		27		27	

Note: ***/**/* indicates statistical significance at the 1/5/10% level, respectively. Column (1): CDA – clustered data analysis with study level clustered standard errors; Column (2): CDA analysis with *p*-values using a non-standard cluster adjustment, the wild bootstrap approach; robustness test for column (1). Column (3): Mixed-effects multilevel (MEM) estimates derived from restricted maximum likelihood estimation.

The test for between-study heterogeneity (Q-test) is 32,220.18*** on 841 degrees of freedom with a *p*-value of less than 0.001 and the I^2 statistic (variation in reported estimates attributable to heterogeneity) is 97.4%. All estimates use the inverse variance as weights. Reported *t*-values are from cluster-robust standard errors.

Table 4. Bivariate meta-regression analysis for the FAT-PET: Jack-knife experiment

Dropped individual studies	Dropped observations	CDA		MEM		Total observations
		FAT coefficient	PET coefficient	FAT coefficient	PET coefficient	
Aparicio (2014)	8	2.451***	-0.002**	2.101***	-0.001	834
Benhassine et al. (2015)	60	2.246***	-0.002**	1.953***	-0.002	782
Benhassine et al. (2018)	63	2.318***	-0.002**	1.994***	-0.002	779
Bruhn (2008)	11	2.466***	-0.002**	2.093***	-0.002	832
Bruhn (2011)	9	2.467***	-0.002**	2.100***	-0.002	833
Bruhn (2013)	8	2.457***	-0.002**	2.131***	-0.002	834
Bruhn and McKenzie (2013)	32	2.628***	-0.002**	2.280***	-0.002	810
Cabrera et al. (2016)	20	2.439***	-0.002**	2.053***	-0.002	822
Campos et al. (2015)	54	2.203***	-0.001*	1.930***	-0.002	788
Campos et al. (2018)	38	1.909***	-0.001**	1.511***	-0.001	804
de Andrade et al. (2014)	36	2.569***	-0.002**	2.190***	-0.002	806
de Giorgi and Rahman (2013)	6	2.476***	-0.002**	2.183***	-0.002	836
de Giorgi et al. (2015)	28	2.517***	-0.002**	2.157***	-0.002	816
de Giorgi et al. (2017)	32	2.505***	-0.002**	2.130***	-0.002	811
de Mel et al. (2013)	26	2.442***	-0.002*	2.060***	-0.002	816
Díaz et al. (2018)	20	2.515***	-0.002**	2.173***	-0.002	822
Fajnzylber et al. (2011)	36	2.457***	-0.002**	2.083***	-0.002	806
Galiani et al. (2017)	48	2.559***	-0.002**	2.149***	-0.002	794
Goldszmidt et al. (2018)	3	2.457***	-0.002**	2.125***	-0.002	839
Kaiser and Menkhoff (2018)	2	2.450***	-0.001**	2.086***	-0.002	840
Lenz (2017)	12	2.465***	-0.002**	2.109***	-0.002	830
Monteiro and Assuncao (2012)	33	2.505***	-0.002**	2.127***	-0.002	809
Piza (2016)	39	2.502***	-0.002**	2.116***	-0.001	803
Piza (2018)	106	2.578***	-0.002**	2.109***	-0.002	736
Rocha et al. (2014)	39	2.529***	-0.002**	2.145***	-0.002	803
Rocha et al. (2018)	69	2.551***	-0.002**	2.128***	-0.002	773
Rothenberg (2015)	6	2.449***	-0.002**	2.145***	-0.002	834

Note: ***/**/* indicates statistical significance at the 1/5/10% level, respectively. All estimates use the inverse variance as weights and standard errors are clustered at the study level or by authors.

Table 5. Multivariate MRA assessing heterogeneity: G-to-S determined specific model

Moderator variables	(1) Specific	(2) CDA	(3) Wild bootstrap	(4) MEM	(5) MEM	(6) MEM	(7) MEM	(8) FE-WLS	(9) MEM	(10) MEM
PET (β_0)	-0.124***	-0.124**	-0.124**	-0.147***	-0.186**	-0.136**	-0.065**	-0.158***	-0.333**	-0.366**
	(0.024)	(0.043)	(0.016)	(0.052)	(0.064)	(0.052)	(0.019)	(0.053)	(0.156)	(0.120)
Bias (β_1)	0.765	0.765	0.765	2.144*	3.333**	2.308*	1.020**	4.417***	1.091	0.774
	(0.490)	(1.026)	(0.544)	(0.954)	(1.264)	(0.944)	(0.391)	(0.718)	(0.889)	(0.793)
No. exp.[a]	-0.140*	-0.140	-0.140	-0.121	-0.109	-0.140	0.066	-0.0004	-0.046	-0.038
	(0.072)	(0.147)	(0.388)	(0.077)	(0.102)	(0.108)	(0.048)	(0.0003)	(0.076)	(0.075)
Data										
No. time	0.002***	0.002*	0.002*	0.003*	0.003*	0.003**	0.001**	-0.029***	0.001	0.001
	(0.001)	(0.001)	(0.096)	(0.001)	(0.001)	(0.001)	(0.0004)	(0.009)	(0.001)	(0.001)
Micro enterprise	-0.026**	-0.026	-0.026*	-0.035**	-0.048***	-0.049***	-0.009	-0.066***	0.004	0.018
	(0.008)	(0.016)	(0.086)	(0.012)	(0.013)	(0.013)	(0.006)	(0.013)	(0.017)	(0.017)
Estimation and Interventions										
Year FE	-0.061***	-0.061**	-0.061**	-0.054*	-0.064**	-0.057**	-0.027**	0.141***	-0.059***	-0.051***
	(0.009)	(0.019)	(0.004)	(0.021)	(0.025)	(0.021)	(0.008)	(0.029)	(0.013)	(0.013)
Sector FE	-0.026***	-0.026**	-0.026**	-0.024*	-0.032*	-0.020	-0.011**	-0.060**	-0.039***	-0.023*
	(0.006)	(0.018)	(0.024)	(0.013)	(0.016)	(0.013)	(0.004)	(0.018)	(0.008)	(0.013)
Market	0.036***	0.036	0.036**	0.034*	0.037*	0.030*	0.023***	0.020**	0.033**	0.014
	(0.009)	(0.018)	(0.048)	(0.014)	(0.016)	(0.014)	(0.023)	(0.009)	(0.012)	(0.014)
Randomized	-0.046***	-0.045*	-0.045**	-0.070**	-0.120**	-0.070**	-0.027**	-0.009	-0.044**	-0.032**
	(0.013)	(0.026)	(0.07)	(0.032)	(0.044)	(0.032)	(0.011)	(0.011)	(0.016)	(0.014)
Benefit	0.028*	0.029	0.028	0.057***		0.057***	0.064***	0.066***	0.058***	0.055***
	(0.012)	(0.023)	(0.326)	(0.015)		(0.015)	(0.009)	(0.007)	(0.015)	(0.015)
Interactions						-0.010***				
						(0.003)				
Specification										
Registration	0.034***	0.034	0.034	0.046***	0.050***	0.044***	0.014***	0.021	0.049***	0.052***
	(0.005)	(0.023)	(0.18)	(0.006)	(0.006)	(0.006)	(0.003)	(0.015)	(0.006)	(0.006)
Age	0.054	0.054***	0.054***	-0.045*	-0.069**	-0.047*	-0.019**	-0.010	0.063***	0.042**
	(0.011)	(0.014)	(0.0)	(0.019)	(0.023)	(0.019)	(0.009)	(0.007)	(0.015)	(0.016)
Education	-0.051***	-0.051**	-0.051***	-0.046*	-0.070**	-0.050**	-0.017*	0.011	-0.061***	-0.041**
	(0.011)	(0.014)	(0.002)	(0.019)	(0.023)	(0.019)	(0.009)	(0.008)	(0.015)	(0.016)
Publication										
Publication	0.065***	0.065**	0.065**	0.066*	0.089**	0.063*	0.029**	0.066**	0.036**	0.029*
	(0.012)	(0.021)	(0.012)	(0.029)	(0.034)	(0.028)	(0.010)	(0.028)	(0.016)	(0.016)
year Published	-0.051***	-0.051**	-0.051***	-0.051*	-0.070**	-0.053**	-0.227***	-0.047**	-0.028**	-0.023*
	(0.009)	(0.016)	(0.014)	(0.022)	(0.026)	(0.021)	(0.008)	(0.021)	(0.012)	(0.012)

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Study citations	0.020***	0.020*	0.020*	0.024*	0.029*	0.023*	0.010**	0.021**	0.009*	0.008
	(0.005)	(0.009)	(0.052)	(0.009)	(0.011)	(0.009)	(0.003)	(0.009)	(0.005)	(0.005)
Potential country differences										
Economic Freedom									0.050**	
									(0.015)	
CPI									-0.002	-0.002
									(0.002)	(0.002)
Regulation										0.017**
										(0.007)
LS&PR										0.049**
										(0.021)
Gov. size										0.010
										(0.008)
Obs. (M)	842	842	842	842	710	842	808	808	842	842
Studies	27	27	27	27	23	27	27	27	27	27
LR test				31.67	35.5	33.34	4.84		25.86	1.52
***p*>chi²**				0.000	0.000	0.000	0.014		0.000	0.089
Log likelihood				-2542.88	-2179.14	-2537.04	-2085.79		-2544.02	-2539.85

Note: The dependent variable is the partial correlation coefficient of the formalization estimates. Figures in parenthesis are standard errors, except for Column (3), which are *p*-values. ***/**/* indicates statistical significance at the 1/5/10% level, respectively. Column (1) reports estimates using the general-to-specific (G-to-S) modelling approach from including all potential moderator variables in the general specification without adjusting standard errors. Column (2) presents estimates from a clustered data analysis (CDA) with study level clustered standard errors; Column (3) shows the estimates using a non-standard cluster adjustment, the wild bootstrap approach. Columns (4)-(7) show the results from a mixed-effects multilevel (MEM) estimation employing restricted maximum likelihood. Column 8 gives the weighted least square using fixed effects. Columns 9 and 10 are MEM including potential country determinants. Following the G-to-S approach, the excluded insignificant independent variables are (ordered from least significance): small firm, Latin America, journal impact, information, household, OLS, No. obs., license, Africa, Gender, and enforcement.

[a] Coefficients and standard errors are multiplied by 1,000 to make the figures easier to read.

All columns use inverse variance weights.

LS abbreviates legal system and PR is used for property rights.

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Figure 1. Funnel plot for all-studies (N=842)
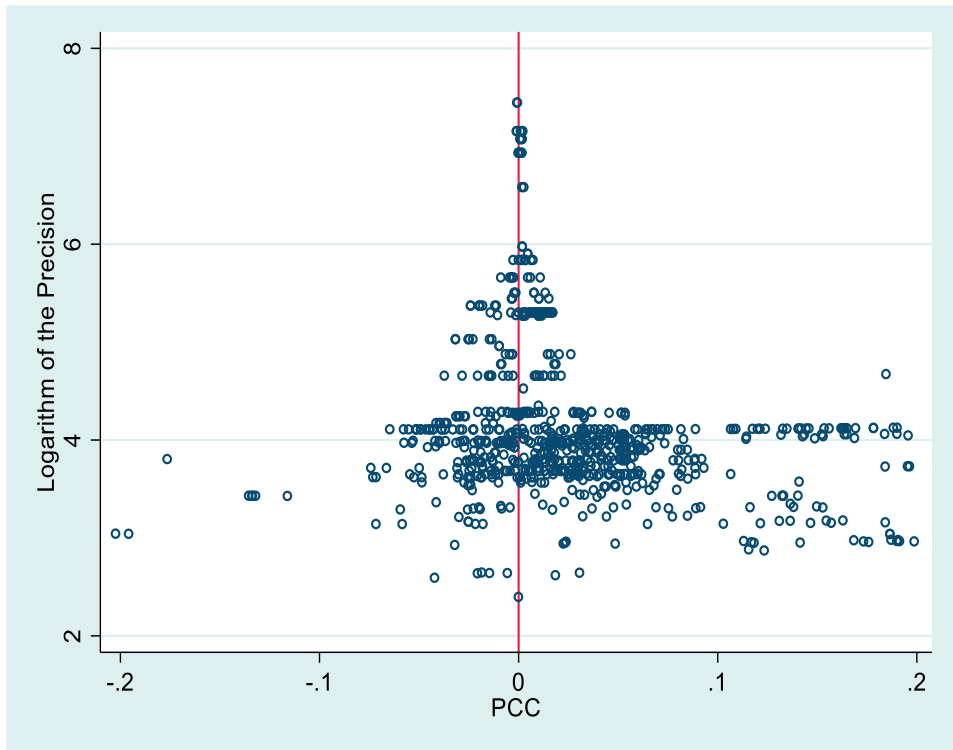
Note: For an improved visualization of the funnel plot, the logarithm of the reciprocal of the SE of the PCC is denoted at the vertical axis.

Appendix 1: List of keywords employed in the review process

Database	Set of the literature	Keywords
Google Scholar; Scopus; World Bank Open Knowledge Repository	Entry cost	"entry cost informal firms"; "entry cost formalization"; "entry regulation formalization"; "entry regulation informal firms"; "impact entry cost informal firms"
	Tax reform	"tax informal firms"; "tax impact informal firms"; "tax informal firms formalization"; "tax formalization"; "tax informal firms"
	Benefit	"benefit formalization"; "benefit informal firms"; "benefit firms registration"; "benefit enterprise formalization"; "benefit firms license"; "credit formalization"; "training formalization"; "credit informal firm"; training informal firms; "training informal enterprises"
	Enforcement	"enforcement" AND "formalization"; "enforcement formalization" AND "RCT"; "enforcement informal firms" AND "RCT"; "enforcement registration enterprises" AND "RCT"; "enforcement license informal firms"; "enforcement license enterprises"
	Information	"information" AND "informal firms"; "information" AND "informal enterprises"; "information" AND informal enterprises formalization"; "information" AND "informal firms formalization"
	Unspecified reforms and processes of formalization, licenses, and registration	"formalization firms"; "informal firms RCT"; "license informal firms RCT"; "registration enterprise"; "reform impact registration enterprise"; "regulatory reform informal firm formalization; "formalization enterprises" AND "RCT"; "formalization firms" AND "RCT"; "formalization businesses" AND "RCT"; "registration enterprises" AND "RCT"; "registration firms" AND "RCT"; "registration businesses" AND "RCT"; "business formalization" AND "evaluation"; "firms formalization" AND "evaluation"; "self-employee registration"; "self-employee formalization"

Appendix 2: List of excluded studies

	Study	Reasons for excluding	Main findings/insights
1	Adom, K. (2014). Beyond the marginalization thesis: an examination of the motivations of informal entrepreneurs in sub-Saharan Africa: insights from Ghana. *The International Journal of Entrepreneurship and Innovation*, *15*(2), 113-125.	No regression analysis (qualitative analysis)	Most informal entrepreneurs are both necessity-driven and opportunity-driven
2	Agostini, L., Caviggioli, F., Filippini, R., and Nosella, A. (2015). Does patenting influence SME sales performance? A quantity and quality analysis of patents in Northern Italy. *European Journal of Innovation Management*.	Other topic (patenting)	N.A.
3	Akinboade, O. A. (2014). Regulation, SMEs' growth and performance in Cameroon's central and littoral provinces' manufacturing and retail sectors. African Development Review, *26*(4), 597-609.	Other outcome (effect of law compliance on firm performance) and other population (both registered and unregistered firms)	Total cost of registration negatively affects business trade volumes
4	Alcázar, L., & Jaramillo, M. (2016) *The Impact of Formality on Microenterprise Performance: A Case Study in Downtown Lima*. GRADE Group for the Analysis of Development. Lima, Peru.	Other outcome (effect of license on performance)	Firms that received the treatment are more likely to have a license
5*	Alcázar, L., Andrade, R., & Jaramillo, M. (2010). *Panel/tracer study on the impact of business facilitation processes on enterprises and identification of priorities for future business enabling environment projects in Lima, Peru. Report 5: impact evaluation after the third round.* Report to the International Finance Corporation, Mimeo.	Other outcome (effect of license on performance)	After the first round, 20.3% of the firms get a license
6	Aleman-Castilla, B. (2006). *The effect of trade liberalization on informality and wages: evidence from Mexico* (No. 763). Centre for Economic Performance, London School of Economics and Political Science.	Other population (both registered and unregistered firms)	Tariff reduction systematically decreases informality
7	Altenburg, T., Hampel-Milagrosa, A., & Loewe, M. (2017). A Decade On: How Relevant is the Regulatory Environment for Micro and Small Enterprise Upgrading After All?. *The European Journal of Development Research*, *29*(2), 457-475.	Other topic (determinants of upgrading: formality status is one of the covariates)	
8	Antunes, A. R., & Cavalcanti, T. V. D. V. (2007). Start up costs, limited enforcement, and the hidden economy. *European Economic Review*, *51*(1), 203-224.	Other topic (correlation between size of informal sector, regulatory framework and enforcement)	Compared to regulation, enforcement of financial contracts has larger effects on the size of the informal sector
9	Arimah, B. C. (2001). Nature and determinants of the linkages between informal and formal sector enterprises in	Other topic (linkages between informal and formal sector)	N.A.

	Nigeria. *African Development Review*, *13*(1), 114-144.		
10	Arruñada, B. (2009). How doing business jeopardises institutional reform. *European Business Organization Law Review*, *10*(4), 555-574.	No regression analysis (theoretical study)	N.A.
11	Awasthi, R., & Engelschalk, M. (2018). *Taxation and the shadow economy: how the tax system can stimulate and enforce the formalization of business activities*. The World Bank.	Other topic (correlation between taxation and shadow economy)	Negative and significant correlation between use of electronic payment and size of shadow economy
12	Babbitt, L. G., Brown, D., & Mazaheri, N. (2015). Gender, entrepreneurship, and the formal–informal dilemma: Evidence from Indonesia. *World Development*, *72*, 163-174.	Other population (both registered and unregistered firms)	Women entrepreneurs are more likely to be registered
13	Boly, A. (2015). *On the benefits of formalization: Panel evidence from Vietnam*. World Institute for Development Economic Research (UNU-WIDER) Working Paper No. 038.	Other outcome (performance)	15.6% of the firms are informal firms that formalized in the period 2005-2013
14	Brockmeyer, A., Kettle, S., & Smith, S. D. (2016). *Casting the Tax Net Wider: Experimental Evidence from Costa Rica*. World Bank Policy Research Working Paper, (7850).	Other population (registered firms)	Increasing level of enforcement improves tax filing among treated (registered) firms
15*	Bruhn, M., & McKenzie, D. (2013). *Using administrative data to evaluate municipal reforms: an evaluation of the impact of Minas Fácil Expresso*. World Bank Policy Research working paper No. 6368. World Bank.	Double version (unpublished study reporting the same results)	The reform had a negative impact on the number of firms registering the business
16	Calderon, G., Cunha, J. M., & De Giorgi, G. (2013). *Business literacy and development: Evidence from a randomized controlled trial in rural Mexico*. National Bureau of economic research (NBER) Working Paper No. 19740.	Other population (both registered and unregistered firms)	No impact of the treatment on business registration
17	Cardenas, M. and Rozo, S. (2007). *La informalidad empresarial y sus consecuencias:¿ Son los CAE una solución?*. Fedesarrollo, Bogotà, Colombia.	Other language (Spanish)	Formal registration of new firms increased by 5.2% in the considered years
18	Charlot, O., Malherbet, F., & Terra, C. (2015). Informality in developing economies: Regulation and fiscal policies. *Journal of Economic Dynamics and Control*, *51*, 1-27.	Other outcome (informality rate)	Lowering product and labor market regulation reduces the informal sector
19	Coolidge, J., & Ilic, D. (2009). *Tax compliance perceptions and formalization of small businesses in South Africa*. World Bank Policy ResearchWorking Paper No. 4992. The World Bank.	Other population (both registered and unregistered firms)	Tax registration is more likely to occur among urban and larger firms
20*	Corseuil, C. H. L., Neri, M., & Ulyssea, G. (2014). *An exploratory analysis of the effects of the formalisation policy for*	Missing information (number of observations)	Positive impact on formalization of both self-employees and microenterprise;

			smaller effects on social protection contribution by self-employees
21	Dabla-Norris, E., Gradstein, M., & Inchauste, G. (2008). What causes firms to hide output? The determinants of informality. *Journal of development economics*, *85*(1-2), 1-27.	Other population (registered firms)	Quality of the legal framework affects the size of the informal sector
22	Davies, R. B., & Paz, L. S. (2011). Tariffs versus VAT in the presence of heterogeneous firms and an informal sector. *International Tax and Public Finance*, *18*(5), 533.	Other population (both registered and unregistered firms)	A cut in VAT tariffs may reduce the size of informal sector
23	De Castro, J. O., Khavul, S., & Bruton, G. D. (2014). Shades of grey: how do informal firms navigate between macro and meso institutional environments?. *Strategic Entrepreneurship Journal*, *8*(1), 75-94.	No regression analysis (qualitative analysis)	Entrepreneurs are more likely to be informal when formal institutions are weak
24*	de Mel, S., McKenzie, D., & Woodruff, C. (2011). What is the Cost of Formality? Experimentally estimating the demand for formalization. *American Economic Journal: Applied Economics, 5*(2), 1221-50.	Double version (unpublished study reporting the same results)	Positive impact of all three formalization treatments
25	De Paula, A., & Scheinkman, J. A. (2011). The informal sector: An equilibrium model and some empirical evidence from Brazil. *Review of Income and Wealth*, *57*, S8-S26.	Other population (both registered and unregistered firms)	Business tax registration positively correlates with age, education, and size of the firm
26	Delipalla, S. (2009). Commodity tax structure and informal activity. *Bulletin of Economic Research*, *61*(3), 283-294.	No regression analysis (theoretical study)	High tax rates make informality more attractive
27	D'Erasmo, P. N. (2016). Access to Credit and the Size of the Formal Sector. *Economía*, *16*(2), 143-199.	Other population (both registered and unregistered firms)	Improvements in the financial sector led to an increase of formal employment
28	Fajnzylber, P., Maloney, W. F., & Montes-Rojas, G. V. (2009). Releasing constraints to growth or pushing on a string? Policies and performance of Mexican micro-firms. *The Journal of Development Studies*, *45*(7), 1027-1047.	Other population (both registered and unregistered firms)	Most firms seeking and obtaining credit are registered firms
29	Fandl, K., & Bustamante Izquierdo, J. (2016). Incentivizing Gray Market Entrepreneurs in Emerging Markets. *Northwestern Journal of International Law & Business, 37*, 415.	No regression analysis (qualitative analysis and descriptive statistics)	A formalization law did not significantly decrease the number of informal firms
30	Farazi, S. (2014). Informal firms and financial inclusion: Status and determinants. *Journal of international commerce, Economics and policy*, *5*(03), 1440011.	Other population (both registered and unregistered firms)	N.A.
31	Fortin, B., Marceau, N., & Savard, L. (1997). Taxation, wage controls and the informal sector. *Journal of public Economics*, *66*(2), 293-312.	Other population (both registered and unregistered firms)	N.A.

32	Fridel, M. (2008). Microcredit and the informal sector on the West Bank. *Do microcredit activities provide enough stimulus to lead businesses away from informal sector characteristics, Master's Thesis, Uppsala University.*	Other outcome (effects of informality on credit access)	No correlation between business registration and access to credit
33	Galal, A. (2005). The economics of formalization: Potential winners and losers from formalization in Egypt. *Investment Climate, Growth, and Poverty*, 39.	No regression analysis (descriptive statistics)	N.A.
34	Galvao, A. F., Montes-Rojas, G., & Gabrieli, T. (2011). Who benefits from reducing the cost of formality? Quantile regression discontinuity analysis. *Quantile Regression Discontinuity Analysis (February 10, 2011).*	Other outcome (revenues)	The reform decreased the number of informal firms; this is driven by the registration of larger firms.
35	Hasan, A. (2002). The changing nature of the informal sector in Karachi as a result of global restructuring and liberalization. *Environment and Urbanization*, *14*(1), 69-78.	No regression analysis (qualitative analysis)	N.A.
36	Hashi, I. (2001). Financial and institutional barriers to SME growth in Albania: results of an enterprise survey. *MOST: Economic Policy in Transitional Economies*, *11*(3), 221-238.	Other outcome (creation of new firms)	N.A.
37	Ingram, M., Ramachandran, V., & Desai, V. (2007). Why do firms choose to be informal? Evidence from enterprise surveys in Africa. RPED paper No. 134. Washington, DC. World Bank.	Other population (both registered and unregistered firms)	Informality negatively correlates with the rate of taxation and corruption
38	Ishengoma, E. K. (2018). Entrepreneur attributes and formalization of micro, small and medium enterprises in Tanzania. *Journal of african business*, *19*(4), 491-511.	Other population (both registered and unregistered firms)	Gender, age, and education explain business registratio
39	Jaramillo Baanante, M. (2009). *The demand for formality among informal firms. Evidences from downtown Lima.* German Development Institute Working paper No. 12/2009	Other population and other comparisons (comparing formal vs informal firms)	One out of four firms receiving the treatment obtain a license
40	Jaramillo, M. (2013). *Is there demand for formality among informal firms? Evidence from microfirms in downtown Lima.* Grupo de Análisis para el Desarrollo (GRADE) Research Progress Paper.	Other population and other comparisons (comparing formal vs informal firms)	Only 25% of the encouraged firms obtain a license
41	Kaplan, D. S., Piedra, E., & Seira, E. (2011). Entry regulation and business start-ups: Evidence from Mexico. Journal of Public Economics, 95(11-12), 1501-1515.	Other outcome (creation of enterprises)	The reform increased the rate of creation of firms.
42	Kathuria, V., Raj, S. R., & Sen, K. (2013). The effects of economic reforms on manufacturing dualism: Evidence from India. *Journal of Comparative Economics*, *41*(4), 1240-1262.	Other outcome (number of firms) and other population (both registered and unregistered firms)	Quality of labor regulation positively affects business formalizatio
43	Khamis, M. (2014). Formalization of jobs and firms in emerging market economies	No regression analysis (qualitative analysis)	Formalization can be achieved by jointly

	through registration reform. *IZA World of Labor*.		sharing information, cutting costs, and increasing enforcement
44	Koto, P. S. (2015). An empirical analysis of the informal sector in Ghana. *The Journal of Developing Areas*, 93-108.	Other population (both registered and unregistered firms)	N.A.
45*	Kus, B. (2014). The informal road to markets. *International Journal of Social Economics*.	No regression analysis (qualitative analysis and descriptive statistics)	Neo-liberal reforms made the expansion of the informal sector possible
46	Maldonado, C. (1995). The informal sector: legalization or laissez-faire. *International Lab. Rev., 134*, 705.	No regression analysis (qualitative analysis and descriptive statistics)	N.A.
47*	Malesky, E., & Taussig, M. (2009). Out of the gray: The impact of provincial institutions on business formalization in Vietnam. *Journal of East Asian Studies, 9*(2), 249-290.	No regression analysis (qualitative analysis and descriptive statistics)	Provincial competitiveness index is positively correlated with firm entry
48	McCulloch, N., Schulze, G., & Voss, J. (2010). What determines firms decisions to formalize. *Evidence from rural Indonesia. University of Freiburg IEP Discussion Paper*, (13).	Other population (both registered and unregistered firms)	Education, age, and ethnic identity are correlated with the licensing of firms
49	McKenzie, D., & Sakho, Y. S. (2010). Does it pay firms to register for taxes? The impact of formality on firm profitability. Journal of Development Economics, 91(1), 15-24.	Other population (both registered and unregistered firms)	N.A.
50	McPherson, M. A., & Liedholm, C. (1996). Determinants of small and micro enterprise registration: Results from surveys in Niger and Swaziland. *World development*, *24*(3), 481-487.	Other population (both registered and unregistered firms)	Registration depends on characteristics such as sector, location, and size.
51*	Monteiro, J., & Assunção, J. J. (2006). Outgoing the shadows: estimating the impact of bureaucracy simplification and tax cut on formality and investment. *Pontifícia Universidáde Católica, Department of Economics, Rio de Janeiro*.	Missing information (standard errors)	Positive impact on firms in the retails sector, and on medium-sized firms
52	Mullainathan, S., & Schnabl, P. (2010). Does less market entry regulation generate more entrepreneurs? Evidence from a regulatory reform in Peru. In *International differences in entrepreneurship* (pp. 159-177). University of Chicago Press.	Other outcome (characteristics of enterprises)	Newly registered firms increased by 384% after the reform
53	Nelson, E. G., & De Bruijn, E. J. (2005). The voluntary formalization of enterprises in a developing economy—the case of Tanzania. *Journal of International Development: The Journal of the Development Studies Association*, *17*(4), 575-593.	No regression analysis (qualitative analysis)	N.A.
54	Nguimkeu, P. (2015). An estimated model of informality with constrained entrepreneurship. *Document de travail de l'Université de l'État de Géorgie, Atlanta, GA.*	Other population (both registered and unregistered firms)	N.A.

55	Nguyen, C., Tran, T. B., & La, H. A. (2013). *The Dynamics of Vietnam Informal Sector: Which Policy Should Be the Best?* (No. 18). Development and Policies Research Center (DEPOCEN), Vietnam.	Other population (both registered and unregistered firms)	The rate of businesses holding a registration certificate or a tax number increased respectively by 12 and 13 percentage points
56	Nguyen, T., Verreynne, M. L., & Steen, J. (2014). Drivers of firm formalization in Vietnam: an attention theory explanation. *Entrepreneurship & Regional Development*, *26*(7-8), 574-593.	Other population (both registered and unregistered firms)	Around 5% of the informal firms become formal in the period of the 4 surveys
57	Olaitan, V. (2016). The Informal Sector and Tax Revenue Drive: A Nigerian Case Study.	Other population (both registered and unregistered firms)	N.A.
58	Pomeranz, D. (2015). No taxation without information: Deterrence and self-enforcement in the value added tax. American Economic Review, 105(8), 2539-69.	Other population (registered firms)	N.A.
59	Prado, M. (2011). Government policy in the formal and informal sectors. *European Economic Review*, *55*(8), 1120-1136.	Other outcome (size of informal sector)	N.A.
60	Rand, J., & Torm, N. (2012). The benefits of formalization: Evidence from Vietnamese manufacturing SMEs. *World development*, *40*(5), 983-998.	No regression analysis (descriptive statistics)	17.6% of the firms that were informal in 2007 became formal in 2009
61	Stein, P., Ardic, O. P., & Hommes, M. (2013). Closing the credit gap for formal and informal micro, small, and medium enterprises. Washington, DC: International Finance Corporation.	No regression analysis (qualitative analysis and descriptive statistics)	N.A.
62	Ulyssea, G. (2010). Regulation of entry, labor market institutions and the informal sector. *Journal of Development Economics*, *91*(1), 87-99.	Other outcome (size of informal sector)	24.3% of the informal salaried workers became formal workers in the considered period
63	Waseem, M. (2018). Taxes, informality and income shifting: Evidence from a recent Pakistani tax reform. Journal of Public Economics, 157, 41-77.	Other population (registered firms)	Firms avoid taxation and migrate into informality to counteract increases of the tax burden
64	Wellalage, N. H., & Locke, S. (2016). Informality and credit constraints: evidence from Sub-Saharan African MSEs. *Applied Economics*, *48*(29), 2756-2770.	Other outcome (effects of informality on credit access)	Informal firms are more likely to face credit constraints
65	Williams, C. C., & Martinez, A. (2014). Entrepreneurship in the informal economy: a product of too much or too little state intervention?. *The International Journal of Entrepreneurship and Innovation*, *15*(4), 227-237.	Other population (registered firms that started the business unregistered) and other comparison (formal enterprises)	One entrepreneur out of five started the business in the informal sector

Source: Authors' elaboration.
Note: The table does not include the 34 studies excluded during abstract and title screening as they focus on other topics.
N.A. stands for insights that are not relevant with respect to the topic of interest.
* Denotes the articles excluded in second stage of the selection. It concerns seven articles.

Appendix 3: PRISMA diagram

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┌─────────────────────┐
│  126 studies        │
│  identified based   │          ┌──────────────────────────┐
│  on abstract        │          │ 34 studies excluded as    │
│  screening          │────────▶ │ they focus on other       │
└─────────────────────┘          │ topics: Formalization of  │
         │                       │ internal employment       │
         │                       │ relations or provision of │
         ▼                       │ web services to           │
┌─────────────────────┐          │ enterprises.              │
│ First stage          │          └──────────────────────────┘
│ screening: 92        │
│ studies              │          ┌──────────────────────────┐
└─────────────────────┘          │ 58 studies excluded        │
         │                       │ because they (i) do not    │
         │──────────────────────▶│ provide quantitative        │
         │                       │ evidence, and/or (ii) focus │
         ▼                       │ on different outcomes.      │
┌─────────────────────┐          └──────────────────────────┘
│ Second stage         │
│ screening: 34        │          ┌──────────────────────────┐
│ studies              │          │ 2 studies dropped as they  │
└─────────────────────┘          │ do not report t-statistics,│
         │──────────────────────▶│ standard errors, and/or     │
         │                       │ sample size.               │
         │                       └──────────────────────────┘
         │
         │                       ┌──────────────────────────┐
         │                       │ 2 studies excluded as they │
         │──────────────────────▶│ are unpublished duplicates │
         │                       │ of already included studies│
         │                       │ presenting identical        │
         │                       │ results.                   │
         │                       └──────────────────────────┘
         │
         │                       ┌──────────────────────────┐
         │──────────────────────▶│ 3 studies excluded as they │
         │                       │ use descriptive statistics.│
         ▼                       └──────────────────────────┘
┌─────────────────────┐
│ 27 studies included  │
│ in the MRA           │
└─────────────────────┘
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Source: Authors' elaboration.

Appendix 4: Studies included in the meta-analysis: overview of the evidence base

Study (year)	Pub type	Country	Data start	Data end	No of est.	Mean effect size	St. Dev.	Range	
Aparicio (2014)	WP	Mexico	1992	2012	8	0.018	0.027	-0.028	0.064
Benhassine et al. (2015)	WP	Benin	2014	2015	60	0.083	0.083	-0.134	0.231
Benhassine et al. (2018)	PR	Benin	2014	2016	63	0.083	0.104	-0.125	0.232
Bruhn & McKenzie (2013)	PR	Brazil	2008	2012	32	-1.250	0.495	-2.331	-0.536
Bruhn (2008)	WP	Mexico	2000	2004	11	0.002	0.003	-0.006	0.005
Bruhn (2011)	PR	Mexico	2000	2004	9	0.002	0.001	-0.001	0.004
Bruhn (2013)	PR	Mexico	2004	2005	8	0.001	0.018	-0.018	0.031
Cabrera et al. (2016)	WP	Uruguay	2013	2015	20	0.163	0.052	0.058	0.232
Campos et al. (2015)	WP	Malawi	2011	2014	54	0.121	0.268	-0.192	0.716
Campos et al. (2018)	WP	Malawi	2011	2015	39	0.253	0.301	-0.191	0.680
de Andrade et al. (2014)	PR	Brazil	2011	2012	36	0.023	0.075	-0.037	0.265
de Giorgi and Rahman (2013)	PR	Bangladesh	2010	2012	6	-0.007	0.002	-0.012	-0.006
de Giorgi et al. (2015)	WP	Bangladesh	2012	2014	28	0.008	0.030	-0.057	0.114
de Giorgi et al. (2017)	PR	Bangladesh	2012	2014	32	0.038	0.071	-0.179	0.264
de Mel et al. (2013)	PR	Sri Lanka	2008	2011	26	0.158	0.159	-0.049	0.476
Díaz et al. (2018)	WP	Peru	2011	2012	20	-0.025	0.058	-0.142	0.033
Fajnzylber et al. (2011)	PR	Brazil	1996	1997	36	0.066	0.055	-0.037	0.222
Galiani et al. (2017)	PR	Colombia	2010	2012	48	0.050	0.087	-0.014	0.373
Goldszmidt et al. (2018)	WP	Brazil	2016	2017	4	0.007	0.010	-0.000	0.020
Kaiser and Menkhoff (2018)	WP	Uganda	2015	2017	2	0.069	0.012	0.060	0.077
Lenz (2017)	DI	Brazil	2016	2017	12	0.040	0.046	-0.022	0.109
Monteiro and Assuncao (2012)	PR	Brazil	1996	1997	33	0.440	2.174	-0.116	12.540
Piza (2016)	WP	Brazil	1996	1997	39	0.075	0.069	-0.170	0.210
Piza (2018)	PR	Brazil	1996	1997	106	0.046	0.059	-0.170	0.330
Rocha et al. (2014)	WP	Brazil	2006	2012	39	0.003	0.057	-0.183	0.115
Rocha et al. (2014)	PR	Brazil	2006	2012	69	0.021	0.034	-0.087	0.132
Rothenberg (2015)	PR	Indonesia	2010	2013	8	-0.007	0.019	-0.036	0.010

Note: PR is peer-reviewed article, WP is working paper, DI is dissertation.

Appendix 5: Studies included in the meta-analysis: overview of the contents

Study (year)	Intervention	Policy type	Study design	Formality indicator	Findings
Aparicio (2014)	SARE reform simplifying firm registration procedures in Mexico.	Cost reduction	Quasi-experimental	Business Registration; Business Associations; Accountability Books; Official Books	The reform had positive and significant effects on firms' formalization; however, it did not systematically affect other formality indicators such as accountability bookkeeping.
Benhassine et al. (2015)	Field experiment testing three versions of the entrepreneur status reform in Benin. The first treatment provides information and assistance for registering; the second treatment add support to access training services and to commercial banks; the third treatment help firms preparing a tax form.	Cost reduction and benefit increasing	RCT	Registration in Chamber of Commerce	After one year, all the three versions of the program had positive impact on business formalization. The effects increase of the third treatment are the highest, followed by the second and the third treatment.
Benhassine et al. (2018)	Entrepreneur status reform in Benin. Findings updated to two years after the intervention.	Cost reduction and benefit increasing	RCT	Registration in Chamber of Commerce	After two years, the three treatments had a positive impact on firms' registration.
Bruhn and McKenzie (2013)	SIMPLES program introducing ones-stop shops for cutting time and costs of registration in Minas Gerais, Brazil.	Cost reduction	Quasi-experimental	Number of firms registering	The introduction of One-stop shops led to a drop in firms' registration and no significant change in tax revenues.
Bruhn (2008)	SARE reform in Mexico cutting cost of registration.	Cost reduction	Quasi-experimental	Registered business owner dummy	The reform increased the number of registered businesses due to former wage workers opening businesses, and not due to the registration of already operating

Study (year)	Intervention	Policy type	Study design	Formality indicator	Findings
					informal firms registering their businesses.
Bruhn (2011)	SARE reform in Mexico decreasing entry costs of registration.	Cost reduction	Quasi-experimental	Registered business owner dummy	The reform had a positive impact on firm creation, but no impact on registration of informal firms
Bruhn (2013)	SARE reform in Mexico reducing time of business registration.	Cost reduction	Quasi-experimental	Dummy for formal business owner	The impact of the reform on informal firms varies depending on the considered type of firms.
Cabrera et al. (2016)	Field experiment providing one-on-one assistance and randomly assigning money to informal parking attendant in Montevideo (Uruguay).	Cost reduction	RCT	Number of self-employees getting a work permit	The treatment increased by three times the likelihood of self-employee to comply with labour regulation.
Campos et al. (2015)	Field experiment providing incremental incentives to three treatment groups for obtaining costless business registration, and offering free registration along with tax registration or with a bank account.	Cost reduction	RCT	Business registration; tax registration; city council license	All the three treatments had a large impact on business registration but small impact on tax registration. The treatment effects are lower for women.
Campos et al. (2018)	Updated results are presented including two additional follow-up surveys to Campos et al. (2015).	Cost reduction	RCT	Business registration; tax registration; city council license	The treatments had large effects on business registration, but did not affect other formality indicator like tax registration and licensing. Registration rate is systematically lower for women.
de Andrade et al. (2014)	Field experiment in Belo Horizonte (Brazil) providing four treatments: information about new formalization procedures; information combined with costless registration; receiving officers' inspection;	Cost reduction and enforcement increasing	RCT	Administrative data measures of formalizing; formalizing after intervention	The study found small or zero effect for all the treatment groups, although the impact is significant for the treatments of receiving information and

Study (year)	Intervention	Policy type	Study design	Formality indicator	Findings
	and inspection to neighbouring firm.				receiving a direct inspection.
de Giorgi and Rahman (2013)	Field experiment in Bangladesh built on a reform reducing time of registration. The treatment provides information about costs and benefits of registration.	Cost reduction	RCT	Dummy for registration	The author found no impact of the intervention on firms' registration; however, the treatment increases the awareness of firms concerning registration procedures.
de Giorgi et al. (2015)	Field experiment assigning unregistered firms to a visit by tax officers who deliver a letter stating that the firm will be punished if it does not register.	Enforcement increasing	RCT	Business self-report to be registered with tax authority; business gave their TIN number; verified TIN number	The study report small positive impact on registration of firms; the results vary depending on three different definition of formality. Firms with larger revenues are found to be more likely to register compared to firms with lower revenues.
de Giorgi et al. (2017)	Field experiment in which tax officers deliver a letter warning about the consequential punishment if the firms fail to register.	Enforcement increasing	RCT	Business self-report to be registered with tax authority; business gave their TIN number; verified TIN number	Treated firms are more likely to formalize compared to untreated firms located in the same market. Additionally, larger revenues firms are more likely to register compared to lower revenues enterprises.
de Mel et al. (2013)	Field experiment assigning firms to four treatments providing incremental monetary incentives to support business registration.	Cost reduction and benefit increasing	RCT	Registered during intervention window; likelihood of registration	Impacts vary depending on the amount of monetary incentive received. Providing information and reimbursing cost of registration do not affect

Study (year)	Intervention	Policy type	Study design	Formality indicator	Findings
					business registration.
Díaz et al. (2018)	Various reforms simplifying and cutting costs of business licensing and labour formalization of Peruvian micro enterprises.	Cost reduction	Quasi-experimental	Municipal license registration; workers registration	Business licensing affects labour formalization but not the other way around, and that enforcement is a key driver of formalization.
Fajnzylber et al. (2011)	SIMPLES program in Brazil, aiming at reducing number of procedures and costs of registration.	Cost reduction	Quasi-experimental	License to operate; registration as legal entity; micro-firm registration; registration with tax authority; paid taxes; paid social security	The program had positive impact that vary depending on proxy for formalization and on the size of the enterprise.
Galiani et al. (2017)	Field experiment in Colombia exploiting the Act 1429 of 2010, which eliminated registration costs and relevant taxes for the first year after registration. The experiment assigns firms to information sessions and to face-to-face meetings.	Cost reduction	RCT	Business license	Both treatments increased business licensing, but face-to-face informational sessions are more effective. The effects are only for the first year, as the second year many firms fail to renew the license.
Goldszmidt et al. (2018)	Microcredit line implemented by the Brazilian National Bank of Economic and Social Development (BNDES).	Benefit increasing	Quasi-experimental	Firm formally registered; firm registered as individual microenterprise	The study reports no association between obtaining a micro loan and the decision of formalizing the business.
Kaiser and Menkhoff (2018)	Randomized field experiment providing traditional training and active learning sessions.	Benefit increasing	RCT	Business formally registered with authority	Active learning systematically improves business formalization by 7 percentage points.
Lenz (2017)	Randomized field experiment in Rio de Janeiro (Brazil) assigning informal firms to face-to-face information advising, text message	Cost reduction	RCT	Business registration; contact with SEBRAE	The paper reports positive and significant impact on formalization only for the joint treatment group that combines

Study (year)	Intervention	Policy type	Study design	Formality indicator	Findings
	reminders, and a combination of both treatments.				information with text message reminders.
Monteiro and Assuncao (2012)	SIMPLES program cutting cost of licensing in Brazil.	Cost reduction	Quasi-experimental	Municipal license	Overall the SIMPLES program had no impact. However, the impact varies depending on the considered sectors: firms in the retail sector are 13 percentage points more likely to have a license.
Piza (2016)	SIMPLES program, implemented in Brazil	Cost reduction	Quasi-experimental	License to operate	The program a limited impact on business licensing. The impact can vary depending on the kick-off date of the program adopted in the analysis.
Piza (2018)	SIMPLES program implemented in Brazil	Cost reduction	Quasi-experimental	License to operate	No impact on firms' formalization. The results vary depending on the cut-off date taken as start of the program.
Rocha et al. (2014)	Individual Micro-Entrepreneur Program (IMP) cutting formalization costs for entrepreneurs with at most one employee in Brazil. The program followed two stages: in the first stage, eliminated cost of registration; and in the second stage, it reduces taxation.	Cost reduction	Quasi-experimental	Registration of informal entrepreneurs	The first stage of the program did not systematically affect business formalization. The second stage had a positive and significant impact. Thus, reducing ongoing costs of formality (taxation) after having eliminated the costs of registration can stimulate business registration.
Rocha et al. (2018)	Individual Micro-Entrepreneur Program (IMP) in Brazil.	Cost reduction	Quasi-experimental	Registration of informal entrepreneurs	Cutting costs of registration does not boost formalization. However,

Study (year)	Intervention	Policy type	Study design	Formality indicator	Findings
					reducing taxes after having already cut costs induces informal firms' formalization.
Rothenberg (2015)	The study assesses the impact of a one-stop-shop program reducing time of registration in Indonesia.	Cost reduction	Quasi-experimental	Firms formally registered	The program had limited impact on business formalization.

Appendix 6: List of primary studies included in the meta-analysis

- Aparicio, G., 2014. *Does Formality Improve Firm Performance? Evidence From a quasi-Experiment in Mexico*. Boston University Working Paper. Boston, MA: Boston University.

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

- Benhassine, N., McKenzie, D., Pouliquen, V., and Santini, M. 2015. *Finding a path to formalization in Benin: early results after the introduction of the entreprenant legal status*. World Bank Policy Research Working Paper No. WPS7510. The World Bank.

- Bruhn, M. 2008. License to sell: the effect of business registration reform on entrepreneurial activity in Mexico. *The World Bank*.

- Bruhn, M. 2011. License to sell: the effect of business registration reform on entrepreneurial activity in Mexico. *Review of Economics and Statistics*, *93*(1), 382-386.

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

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

- Cabrera, J.M., Cid, A., and Bernatzky, M. 2016. *The effect of one-on-one assistance on the compliance with labor regulation. A Field Experiment in Extremely Vulnerable Settings.* No. 1605. Facultad de Ciencias Empresariales y Economia. Universidad de Montevideo.

- Campos, F., Goldstein, M.P., and McKenzie, D.J. 2015. Short-Term Impacts of Formalization Assistance and a Bank Information Session on Business Registration and Access to Finance in Malawi. World Bank Policy Research Working Paper No. WPS7183. The World Bank.

- Campos, F., Goldstein, M., and McKenzie, D.J. 2018. *How Should the Government Bring Small Firms into the Formal System? Experimental Evidence from Malawi*. World Bank Policy Research Working Paper No. WPS8601. The World Bank. Washington DC.

- De Andrade, G.H., Bruhn, M., and McKenzie, D.J. 2014. A Helping Hand Or the Long Arm of the Law? Experimental Evidence on what Governments can do to Formalize Firms. *The World Bank Economic Review,* 30(1), 24-54.

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

- De Giorgi, G., Ploenzke, M., and Rahman, A. 2015. *Small Firms' Formalization: The Stick Treatment*. World Bank Policy Research Paper No. 7318. The World Bank.

- De Giorgi, G., Ploenzke, M., and Rahman, A. 2017. Small Firms' Formalisation: The Stick Treatment. *Journal of Development Studies*, *54*(6), 983-1001.
- De Mel, S., McKenzie, D., and Woodruff, C. 2013. The demand for, and consequences of, formalization among informal firms in Sri Lanka. *American Economic Journal: Applied Economics*, *5*(2), 122-50.
- Díaz, J.J., Chacaltana, J., Rigolini, J., and Ruiz, C., 2018. Pathways to Formalization: Going Beyond the Formality Dichotomy. IZA, Discussion Paper Series No. 11750. IZA.
- Fajnzylber, P., Maloney, W.F., and Montes-Rojas, G.V. 2011. Does Formality Improve Micro-Firm Performance? Evidence from the Brazilian SIMPLES Program. *Journal of Development Economics, 94(2), 262-276.*
- Galiani, S., Meléndez, M., and Ahumada, C.N. 2017. On the Effect of the Costs of Operating Formally: New Experimental Evidence. *Labour Economics, 45: 143-157.*
- Goldszmidt, R., Behr, P., Zucco, C., Lenz, A.K., Farias, L.E.G., Valdivia, M., and Grade, P. 2018. *Microcredit Impacts: Evidence from a Large-scale Observational Study in Brazil*.
- Kaiser, T., and Menkhoff, L. 2018. *Active learning fosters financial behavior: Experimental Evidence*. DIW Discussion Papers No. 1743, DIW Berlin, German Institute for Economic Research.
- Lenz, A.K. 2017. Studies on entrepreneurship and formalization in Brazil. Doctoral dissertation. The School of Public Business and Administration (EBAPE)- Getulio Vargas Foundation, Rio de Janeiro.
- Monteiro, J.C., and Assunção, J.J. 2012. Coming Out of the Shadows? Estimating the Impact of Bureaucracy Simplification and Tax Cut on Formality in Brazilian Microenterprise. *Journal of Development Economics, 99(1), 105-115.*
- Piza, C. 2016. Revisiting the Impact of the Brazilian SIMPLES Program on Firms' Formalization Rates. *Policy Research Working Paper* 7605, *World Bank Group*.
- Piza, C. 2018. Out of the Shadows? Revisiting the impact of the Brazilian SIMPLES program on firms' formalization rates. *Journal of Development Economics,* 134, 125-132.
- Rocha, R., Rachter, L., and Ulyssea, G. 2014. Do entry regulation and taxes hinder firm creation and formalization? Evidence from Brazil. *Rio de Janeiro, Brazil. Instituto de Economia, Universidade Federal Do Rio de Janeiro*.
- Rocha, R., Ulyssea, G., and Rachter, L. 2018. Do lower taxes reduce informality? Evidence from Brazil. *Journal of Development Economics*, 134, 28-49.
- Rothenberg, A. D., Gaduh, A., Burger, N. E., Chazali, C., Tjandraningsih, I., Radikun, R., Sutera, C. and Weilant, S. 2015. Rethinking Indonesia's informal sector. *World Development*, 80, 96-113.

Appendix 7: Correlation Matrix of the Moderator Variables (N=866)

	No. Exp	No. Time	No obs.	Micro firm	Small firm	Latin America	Africa	Asia	OLS	Sector	Time	Market	Randomized experiment	Cost
No. Exp	1.000													
No. Time	0.2682	1.000												
No obs.	0.2558	0.3499	1.000											
Micro firm	0.2430	0.0807	-0.0690	1.000										
Small firm	-0.1242	-0.0706	-0.1397	-0.6882	1.000									
Latin America	0.2120	0.0704	0.1266	0.7864	-0.7603	1.000								
Africa	-0.0861	-0.0543	0.0089	-0.5954	0.8691	-0.7614	1.000							
Asia	-0.2029	-0.0324	-0.2030	-0.3775	-0.0335	-0.4743	-0.2096	1.000						
OLS	-0.2462	-0.3596	-0.1678	-0.0713	-0.0383	-0.0759	0.0075	0.1043	1.000					
Sector	0.4197	0.4769	0.2372	0.2407	-0.0546	0.2028	-0.1548	-0.0956	-0.5484	1.000				
Time	0.4437	0.6603	0.5649	0.0927	-0.3326	0.3371	-0.2929	-0.1106	-0.3694	0.3937	1.000			
Market	0.4006	0.2232	0.2573	-0.2488	0.2353	-0.4024	0.3478	0.1347	-0.0378	0.2797	0.0946	1.000		
Randomized experiment	-0.2757	-0.1565	-0.3274	-0.4825	0.5688	-0.7359	0.5895	0.3094	0.1980	-0.2184	-0.4969	0.3386	1.000	
Cost	0.1517	0.1358	0.2338	0.2731	-0.0474	0.3954	0.0456	-0.6584	-0.2363	0.1867	0.2180	-0.2012	-0.4133	1.000
Benefit	-0.0449	-0.1203	-0.1524	-0.3569	0.5339	-0.4720	0.4499	0.1009	0.2214	-0.1447	-0.1926	0.1815	0.3599	-0.3500
Enforcement	-0.1432	-0.1063	-0.1275	-0.1642	-0.2130	-0.2445	-0.1876	0.6236	0.2349	-0.2124	-0.1633	0.1760	0.3287	-0.7493
Information	-0.2183	-0.1114	-0.2339	-0.3114	0.4332	-0.3499	0.4159	-0.0371	0.1476	-0.1744	-0.1964	0.0251	0.6058	-0.0378
Registration	0.3056	0.3049	0.1037	-0.2176	0.2824	-0.2700	0.4068	-0.1453	-0.1856	0.1568	0.3636	0.2842	0.1098	0.0545
License	-0.2390	-0.3196	-0.1671	0.3193	-0.2501	0.4029	-0.3570	-0.1230	0.1962	-0.2076	-0.2749	-0.4280	-0.2404	0.1813
Other indicators	-0.0861	0.0225	0.0857	-0.1381	-0.0405	-0.1802	-0.0628	0.3572	-0.0158	0.0693	-0.1152	0.1948	0.1756	-0.3146
Gender	0.4378	-0.0001	0.2455	0.0649	-0.0106	0.0967	0.0816	-0.2566	-0.1071	0.1775	0.0773	0.2545	-0.2007	0.2898
Age	0.5362	0.0667	0.2729	0.3312	-0.3080	0.3777	-0.2353	-0.2502	-0.1216	0.4680	0.1893	0.2538	-0.3047	0.3083
Education	0.5897	0.0072	0.2837	0.3702	-0.3864	0.4418	-0.3383	-0.2069	-0.0277	0.3487	0.2448	0.2862	-0.4139	0.2483
Household	0.1647	-0.2872	0.0539	0.2966	-0.2830	0.3274	-0.2493	-0.1553	0.1443	0.0091	-0.2170	0.0700	-0.3719	0.1855
Publication year	-0.0926	0.1088	-0.2238	0.1698	0.1759	-0.1749	0.1892	0.0068	-0.0554	0.1228	-0.0652	-0.1940	0.2216	-0.0193
Published	0.4345	0.0754	0.2075	0.0468	-0.1704	0.0676	-0.2090	0.1819	-0.0850	0.1848	0.2501	0.2800	0.0522	-0.0778
Study citations	0.4213	0.0185	0.3639	0.0636	-0.1682	0.1144	-0.2500	0.1669	-0.2219	0.1697	0.2034	0.3164	-0.1227	-0.0025
Journal impact	0.2124	-0.0557	-0.0737	0.0936	0.0955	-0.0019	-0.1487	0.2048	0.1034	0.0401	-0.0565	0.0321	0.0253	-0.0949

	Benefit	Enforcement	Information	Registration	License	Other indicators	Gender	Age	Education	Household	Publication year	Published	Study citations	Journal impact
Benefit	1.000													
Enforcement	-0.1234	1.000												
Information	0.4983	-0.2312	1.000											
Registration	0.3046	-0.1479	0.2997	1.000										
License	-0.1761	-0.2162	-0.1455	-0.7181	1.000									
Other indicators	-0.1689	0.4853	-0.2034	-0.3674	-0.3834	1.000								
Gender	-0.1598	-0.2563	-0.2331	-0.0345	0.0811	-0.0626	1.000							
Age	-0.2670	-0.2507	-0.2277	-0.1091	0.2061	-0.1307	0.7185	1.000						
Education	-0.1638	-0.2265	-0.2307	-0.0759	0.1882	-0.1509	0.5457	0.8326	1.000					
Household	-0.1639	-0.1390	-0.2762	-0.2917	0.3034	-0.0184	0.4900	0.5413	0.6000	1.000				
Publication year	0.0748	0.0482	0.1278	0.1781	-0.1683	-0.0115	-0.2317	-0.1905	-0.2603	-0.4336	1.000			
Published	0.0864	0.1229	0.1964	0.1060	-0.1587	0.0714	-0.0123	0.2037	0.3417	0.0874	0.0044	1.000		
Study citations	-0.0427	0.0403	-0.1170	-0.1692	0.0814	0.1157	0.1639	0.2758	0.4082	0.2562	-0.2685	0.7839	1.000	
Journal impact	0.3463	-0.1318	0.1704	-0.1354	0.2536	-0.1592	-0.0341	0.0823	0.2192	0.1200	0.0759	0.5591	0.6098	1.000

Appendix 8: Detailed discussion of the robustness checks

Table A1 presents the results from the FAT-PET bivariate analysis. We find that cost and enforcement policy interventions suffer from a positive and statistically significant publication bias. This finding is consistent with the one we established for the sample as a whole (Tables 3 and 5). In addition, disaggregation by policy type reveals that interventions providing benefits are less likely to be subject to publication bias. In terms of PET, we find negative genuine effects for policies cutting the costs of registration and actions increasing enforcement but the findings are only statistically significant for the latter. In turn, policies increasing the benefits of formalization have a statistically significant positive genuine effect of 0.075 (p-value<0.001). Note that this effect is also practically relevant albeit still considered small (Doucouliagos, 2011). These subsample analyses provide further evidence in favour of policies that increase the benefits of formalization. Yet, the number of observations assessing benefit interventions is only 109 and therefore, this finding has to be treated with some caution. Since we have enough reported estimates presenting the results of interventions associated with reducing the costs and time of registration, we also apply a separate multivariate meta-analysis for the subsample of these studies. The results are reported in Column 5 of Table 5, corroborating the corresponding findings for the full sample (Column 4). In fact, most of the reported coefficients improve in size in particular the coefficients associated with the genuine effect and the bias variables. We also provide a funnel plot for the subsample analysis of policies that cut the costs of registration: Appendix 9, Figure A1 presents the results. Comparing this funnel plot with the overall funnel plot presented in Figure 1 shows that the plots are comparable in shape and location except that Figure 1 features more reported estimates.

Next, we further explore the findings reported in Table 5 to systematically estimate the underlying genuine effect from the multivariate MRA conditional on the identified sources of heterogeneity. We apply the best practice approach (Demena and Bergeijk, 2017; Stanley and Doucouliagos, 2012). We define the best practice conditional on the reported estimates using the randomized experimental design providing benefits to the micro-enterprises controlling for market fixed effects and investigating registration as the formalization indicator of choice; we selected these moderator variables as they are widely used in the primary studies we analysed. We also included controls for the quality of the studies used in

this meta-analysis. As quality indicator we consider whether the study is peer-reviewed, the publication year of the study and the number of citations received in Google Scholar relative to the age of the study. We selected these for the following reasons: First, nearly two-thirds of the reported estimates are constructed from peer-reviewed studies. In addition, most economists would consider publication in a peer reviewed journal as an indicator for higher quality compared to articles that have not undergone peer-review. Moreover, more recent studies show an upward trend in reporting positive formalization impacts and citation counts indicate visibility, impact and quality. The resulting analysis suggests that the predicted genuine effect conditional on the identified sources of heterogeneity is -0.076 with a t-value of -1.28, i.e. the overall genuine effect is statistically insignificant at the 10% level. Consequently, the corrected correlation coefficient derived from the best practice approach is not significant after accounting for the observable sources of heterogeneity and correcting for publication bias.

In addition, we performed further robustness checks related to the quality and design of the primary studies, data type, outliers and model uncertainty in the multivariate MRA (alternative meta-regression estimators). We start with simple and weighted summary statistics of the overall impact (Appendix 8, Table A2). In all the cases the results corroborate the findings reported in Table 2. In Appendix 8, Table A3, we present the results of a bivariate meta-regression analysis for FAT-PET (i) restricting the sample to peer-reviewed studies; (ii) excluding effects from regressions with interaction variables; (iii) excluding potential outlying observations; and (iv) applying the average (one study-one estimate) approach. To account for potential outliers, we rely on Hadi (1994) to filter out outliers in both estimated effects and standard errors jointly. The procedure is commonly applied in a multivariate outlier dataset (Demena and Afesorgbor, 2020; Demena and Bergeijk, 2017; Iršová and Havránek, 2013). Applying this procedure, we exclude 34 observations (4.04%). Finally, we computed average estimates (also known as one study-one estimate) across all reported estimates within each study to further check robustness of the full dataset eliminating within-study dependence (Demena, 2015). The findings are robust and support our main conclusions. We also present a funnel plot for the peer-reviewed estimates only (Appendix 9, Figure A2) showing a similar shape and location of the plot compared to the full funnel plot with all studies (Figure 1). We further study the role of interaction terms and omitting potential outliers in a multivariate framework in Columns 6 and 7 of Table 5, respectively. We use a dummy indicating the presence of interaction terms. Once again, the results mimic

the main findings presented in Column 4 both qualitatively (sign) and quantitatively (size and significance), except that now the coefficient associated with the micro firm indicator is statistically significant only at the 14 per cent level (Column 7).

We further attempt to address model uncertainty regarding the inclusion of the moderator variables in the multivariate MRA. So far, we have addressed this issue with the G-to-S approach. Yet, others have adopted the weighted-average least squares (WALS) or Bayesian Model Averaging (BMA) (Ugur et al., 2020; Iršová and Havránek, 2013). To assess the validity of our approach, we also employed WALS. WALS provides similar estimation results as BMA but at a much lower cost in terms of computation time (Magnus et al., 2010). Furthermore, De Luca and Magnus (2011) argue that WALS combines frequentist estimation using Bayesian weights and relies on transparent ignorance in the selection of the focus variable(s) (Ugur et al., 2020). The focus variable is precision and all other moderator variables are considered as auxiliary covariates, and thus their relevance determined by the data at hand (Ugur et al., 2020). The inclusion decision of the auxiliary covariates for the multi-level MRA is that a variable needs an absolute t-value ≥ 1 (De Luca and Magnus, 2011; Magnus et al., 2010). Appendix 8, Table A4 provides results of the WALS replacing the G-to-S approach in Table 5. Once more, the results mimic the corresponding findings presented in Table 5 both qualitatively and quantitatively. Additionally, the WALS modelling suggests the inclusion of enforcement (as intervention indicator) and license (as indicator of formalization). The former appears to induce formalization (on average by 0.048) and the latter is likely to reduce it (on average by 0.028), suggesting that the absence of interventions increasing enforcement might explain the observed differences in formalization (Column 4). This is consistent with Bruhn and McKenzie (2013) in the sense that ease of formalization will not induce firms to formalize but rather increased enforcement can enhance it. Similarly, De Giorgi et al. (2017) argue that the lack of enforcement of weak states could be a key explanation for informality. Concerning the negative coefficient associated with license, a possible explanation is that often licenses are temporary and need to be periodically renewed; thus, the negative coefficient estimate is likely to suggest that many enterprises fail to renew the license.

Finally, we present additional analyses and robustness checks excluding working papers with different results than the published version. According to Stanley and Doucouliagos (2012), the *same* reported estimates from the *same* author(s) using the *same* data as previously

published in an earlier version of a paper should be *excluded* from the analysis. In our case, we identified five articles published in peer-reviewed journals from the same authors with *different* reported estimates compared to the previously published working papers. Due to the differences across versions we include both the working paper and the peer-reviewed paper in our main analysis, as the *same* authors use similar data but produced *different* estimates. Yet, to assess the robustness of our results, we exclude these five working papers. This results in a drop in observations from 842 to 668. Results are presented in the Appendix 8. In Table A5 we present the average estimates of the overall entry reforms. Results closely mimic those presented in Table 2. The weighted average is 0.004. In Table A6 we show the bivariate meta-regression analysis for the FAT-PET again corroborating our earlier findings presented in Table 3. We identify a negative albeit small genuine effect of -0.002 and the FAT ranges between 2.128 and 2.478. Finally, in Table A7 we present the heterogeneity analysis, which is again supporting the earlier drawn conclusions.

In a nutshell, the further analyses and robustness tests support our main findings identifying the absence of practical impacts of the studied formalization policies.

Appendix 9: Robustness checks – Tables

Table A1. Bivariate meta-regression analysis for the FAT-PET: Across polices

| | Panel A: Cost | | | | Panel B: Benefit | | | |
| | CDA | | MEM | | CDA | | MEM | |
Variables	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Bias/FAT	2.331***	2.89	1.912***	2.63	1.141	1.48	1.141	0.85
Genuine effect /PET	-0.002**	-2.27	-0.002	-0.94	0.075***	4.11	0.075***	2.87
Observations	710		710		109		109	
Studies	23		23		5		5	

| | Panel C: Enforcement | | | | | | | |
| | CDA | | MEM | | | | | |
Variables	Coefficient	t-value	Coefficient	t-value				
Bias/FAT	1.628***	3.67	2.123***	3.56				
Genuine effect /PET	-0.108***	-3.03	-0.026**	-2.19				
Observations	79		79					
Studies	4		4					

Note: See the note of Table 3 for details.

Table A2. Estimates of the overall entry reforms and related policy actions: Robustness checks I

Method	Effect size	S.E.	95% confidence interval	
Peer-reviewed studies				
Simple average effect[a]	0.028	0.003	0.023	0.034
Weighted average effect[b]	0.012	0.002	0.009	0.016
Excluding interaction terms				
Simple average effect[a]	0.058	0.004	0.049	0.066
Weighted average effect[b]	0.033	0.003	0.026	0.039
Average (one study-one estimate)				
Simple average effect[a]	0.034	0.002	0.013	0.039
Weighted average effect[b]	0.016	0.002	0.013	0.020
Excluding outliers				
Simple average effect[a]	0.032	0.002	0.027	0.036
Weighted average effect[b]	0.015	0.002	0.012	0.018

Note: [a] arithmetic mean of the PCC. [b] inverse variance as weight.

Table A3. Bivariate meta-regression analysis for FAT-PET: Robustness checks II

	Peer-reviewed studies				Excluding interaction terms			
Variables	(1) CDA		(2) MEM		(3) CDA		(4) MEM	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Bias/FAT	1.377**	2.94	1.028**	2.30	3.140***	3.10	2.736***	3.12
Genuine effect /PET	-0.001	-1.59	-0.001	-1.09	-0.002**	-2.43	-0.002	-1.01
Observations	511		511		651		651	
Studies	14		14		26		26	
	Excluding outliers				Average (one study-one estimate)			
Variables	(5) CDA		(6) MEM		(7) CDA			
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value		
Bias/FAT	1.763***	3.91	1.583***	4.17	1.846**	2.96		
Genuine effect /PET	-0.001**	-2.32	-0.001	-1.21	-0.001*	-1.77		
Observations	808		808		27			
Studies	27				27			
			27		27			

Note: See the note of Table 3 for details.

Table A4. Multivariate MRA assessing heterogeneity: WALS determined specific model - Robustness checks III

Moderator variables	(1) Specific	(2) CDA	(3) Wild bootstrap	(4) MEM	(5) MEM	(6) MEM	(7) MEM	(8) FE-WLS	(9) MEM	(10) MEM
PET (β_0)	-0.112***	-0.123*	-0.122**	-0.172**	-0.191**	-0.161**	-0.065**	-0.153**	-0.322**	-0.403**
	(0.023)	(0.042)	(0.004)	(0.059)	(0.066)	(0.059)	(0.020)	(0.059)	(0.160)	(0.150)
Bias (β_1)	0.935**	0.806	0.806	2.822**	3.422**	3.085**	1.030**	4.542***	1.295	0.832
	(0.463)	(1.038)	(0.534)	(1.116)	(1.323)	(1.119)	(0.391)	(0.692)	(0.933)	(0.957)
No. exp.[a]	-0.111	-0.148	-0.147	-0.109	-0.106	0.164	0.065	-0.024	-0.046	-0.026
	(0.100)	(0.150)	(0.396)	(0.077)	(0.081)	(0.108)	(0.048)	(0.049)	(0.076)	(0.075)
Data										
No. time	0.002**	0.002*	0.002*	0.003**	0.003**	0.003**	0.001**	-0.025**	0.001	0.002
	(0.0005)	(0.001)	(0.098)	(0.001)	(0.001)	(0.001)	(0.0005)	(0.007)	(0.001)	(0.014)
Micro enterprise	-0.017*	-0.021	-0.021*	-0.034**	-0.038**	-0.049***	-0.009	-0.054**	0.004	0.021
	(0.008)	(0.014)	(0.086)	(0.013)	(0.014)	(0.013)	(0.006)	(0.018)	(0.018)	(0.020)
Estimation and Interventions										
Year FE	-0.047***	-0.057**	-0.057**	-0.057**	-0.061**	-0.061**	-0.028**	-0.1144**	-0.062***	-0.051***
	(0.009)	(0.018)	(0.002)	(0.023)	(0.025)	(0.023)	(0.008)	(0.035)	(0.014)	(0.014)
Sector FE	-0.024**	-0.029**	-0.029*	-0.056**	-0.061**	-0.052**	-0.011	-0.059**	-0.048***	-0.023
	(0.009)	(0.014)	(0.06)	(0.017)	(0.018)	(0.017)	(0.007)	(0.020)	(0.012)	(0.015)
Market	0.030***	0.037*	0.037*	0.046**	0.049**	0.043**	0.023**	0.021**	0.038**	0.007
	(0.009)	(0.021)	(0.092)	(0.016)	(0.017)	(0.016)	(0.007)	(0.010)	(0.012)	(0.015)
Randomized	-0.027*	-0.036	-0.036	-0.122**	-0.126**	-0.129**	-0.029**	-0.0042	-0.060**	-0.062**
	(0.014)	(0.030)	(0.22)	(0.039)	(0.044)	(0.039)	(0.013)	(0.039)	(0.023)	(0.023)
Benefit	0.023*	0.023	0.023	0.061***		0.061***	0.064***	0.067***	0.059***	0.060***
	(0.013)	(0.022)	(0.422)	(0.015)		(0.015)	(0.009)	(0.007)	(0.015)	(0.015)
Enforcement	-0.039	-0.024	-0.024	0.048*		0.055**	0.004	0.022	0.010	0.035
	(0.015)	(0.023)	(0.38)	(0.026)		(0.026)	(0.012)	(0.019)	(0.024)	(0.024)
Specification										
Registration	0.027***	0.031	0.031	0.041***	0.043***	0.040***	0.015***	0.019	0.046***	0.049***
	(0.005)	(0.021)	(0.128)	(0.006)	(0.007)	(0.006)	(0.004)	(0.008)	(0.006)	(0.006)
License	-0.003	-0.004	-0.004	-0.028**	-0.029**	-0.027**	0.001	-0.008	-0.009	-0.020**
	(0.007)	(0.010)	(0.698)	(0.008)	(0.009)	(0.008)	(0.005)	(0.010)	(0.008)	(0.008)
Age	0.043	0.054***	0.054***	-0.040*	-0.063**	-0.042**	0.019*	-0.010	0.071***	0.050**
	(0.012)	(0.015)	(0.0)	(0.020)	(0.023)	(0.020)	(0.009)	(0.007)	(0.016)	(0.017)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Education	-0.040***	-0.051**	-0.051***	-0.041**	-0.063**	0.044**	-0.017*	0.011	-0.069***	-0.049**
	(0.012)	(0.014)	(0.002)	(0.020)	(0.023)	(0.019)	(0.009)	(0.008)	(0.016)	(0.017)
Interactions						-0.011***				
						(0.003)				
Publication										
Publication year	0.056***	0.063**	0.063**	0.085**	0.095***	0.083**	0.029**	0.067**	0.041**	0.036**
	(0.012)	(0.019)	(0.008)	(0.024)	(0.034)	(0.031)	(0.010)	(0.029)	(0.017)	(0.018)
Published	-0.045***	-0.049**	-0.049**	-0.068**	-0.076**	-0.071**	-0.023**	-0.052**	-0.032**	-0.029**
	(0.009)	(0.015)	(0.008)	(0.024)	(0.027)	(0.024)	(0.008)	(0.022)	(0.013)	(0.014)
Study citations	0.018***	0.020**	0.020*	0.031**	0.033**	0.029**	0.010**	0.022**	0.011*	0.010*
	(0.005)	(0.008)	(0.054)	(0.011)	(0.011)	(0.011)	(0.003)	(0.010)	(0.06)	(0.005)
Potential country differences										
Economic Freedom									0.048**	
									(0.016)	
CPI									-0.001	-0.001
									(0.003)	(0.003)
Regulation										0.031***
										(0.008)
LS&PR										0.045*
										(0.026)
Size Gov.										0.002
										(0.009)
Obs. (N)	842	842	842	842	710	842	808	808	842	842
Studies	27	27	27	27	23	27	27	27	27	27
LR test				44.93	45.33	47.93	3.36		23.24	2.66
***p*>chi²**				0.000	0.000	0.000	0.033		0.000	0.051
Log likelihood				-2535.09	-2173.84	-2528.70	-2085.74		-2543.16	-2536.02

Note: The dependent variable is the partial correlation coefficient of the formalization estimates. Figures in parenthesis are standard errors, except for Column (3), which are *p*-values. ***/**/* indicates statistical significance at the 1/5/10% level, respectively. Column (1) reports estimates using the general-to-specific (G-to-S) modelling approach from including all potential moderator variables in the general specification without adjusting standard errors. Column (2) presents estimates from a clustered data analysis (CDA) with study level clustered standard errors; Column (3) shows the estimates using a non-standard cluster adjustment, the wild bootstrap approach. Columns (4)–(7) show the results from a mixed-effects multilevel (MEM) estimation employing restricted maximum likelihood. For further comparison of our main findings, Column 7 exclude potential outliers. Column 8 gives the weighted least square using fixed effects. Columns 9 and 10 are MEM including potential country determinants. Following the WALS modelling, the excluded moderator variables are small firm (0.37), Latin America (0.21), Africa (0.59), journal impact (0.19), information (0.41), household (0.50), OLS (0.55), No. obs. (0.63), and Gender (0.78), in which in () are absolute *t*-values that are in all cases less than 1.

^a Coefficients and standard errors are multiplied by 1,000 to make the figures easier to read.

All columns use inverse variance weights.

Table A5. Estimates of the overall entry reforms – an additional robustness check

Method	Effect size	S.E.	95% confidence interval	
Simple average effect [a]	0.045	0.004	0.037	0.053
Weighted average effect [b]	0.004	0.001	0.002	0.007

Note: See the note of Table 2 for details.

Table A6. Bivariate meta-regression analysis for the FAT-PET – an additional robustness check

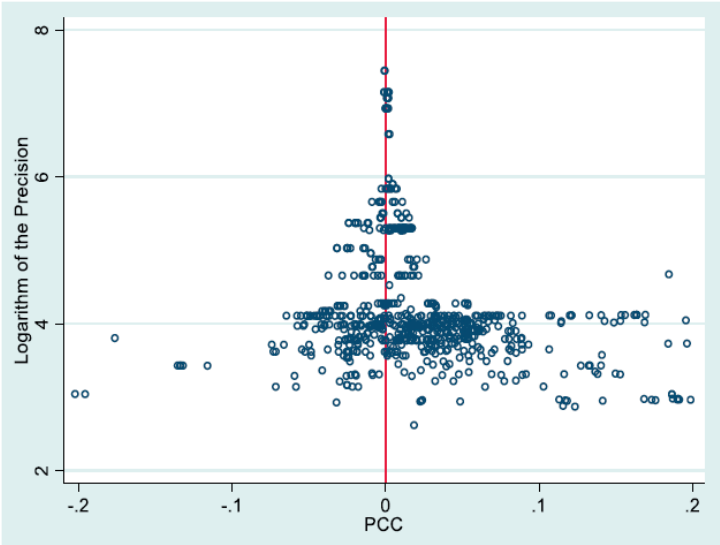|	All studies					
	(1)		(2)		(3)	
Variables	CDA		Wild bootstrapped		MEM	
	Coefficient	*t*-value	Coefficient	*p*-value	Coefficient	*t*-value
Bias (FAT)	2.478***	2.96	2.478***	0.00	2.128**	2.82
Genuine effect (PET)	-0.002**	-2.30	-0.002**	0.08	-0.002	-1.02
Observations	668		688		688	
Studies	22		22		22	

Note: See the note of Table 3 for details.
The test for between-study heterogeneity (Q-test) is 29,205.11*** on 667 degrees of freedom with a *p*-value of less than 0.000 and the I^2 statistic (variation in reported estimates attributable to heterogeneity) is 97.7%.

Table A7. Multivariate MRA assessing heterogeneity across studies – an additional robustness check

Moderator variables	(1) Specific	(2) CDA	(3) Wild bootstrapped	(4) MEM	(5) MEM	(6) MEM	(7) MEM
PET coefficient (β_0)	-0.124***	-0.099*	-0.099*	-0.122	-0.151	-0.127	-0.067**
	(0.024)	(0.052)	(0.098)	(0.093)	(0.109)	(0.094)	(0.031)
Bias coefficient (β_1)	0.765	1.260	1.260	2.281*	3.614**	2.426**	1.341**
	(0.490)	(1.231)	(0.358)	(1.193)	(1.491)	(1.201)	(0.449)
No. exp.[a]	-0.140*	-0.202	-0.202	-0.122	-0.107	-0.280	-0.078
	(0.072)	(0.221)	(0.462)	(0.100)	(0.107)	(0.137)	(0.053)
Data							
No. time	0.002***	-0.001	-0.001	-0.000	-0.001	0.001	0.001
	(0.001)	(0.002)	(0.714)	(0.004)	(0.004)	(0.004)	(0.001)
Micro enterprise	-0.026**	-0.013	-0.013	-0.027	-0.037	-0.051**	-0.007
	(0.008)	(0.018)	(0.478)	(0.021)	(0.024)	(0.022)	(0.008)
Estimation and Interventions							
Year FE	-0.061***	-0.041*	-0.041	-0.044	-0.054	-0.060	-0.023*
	(0.009)	(0.022)	(0.112)	(0.041)	(0.047)	(0.041)	(0.013)
Sector FE	-0.026***	-0.028**	-0.028*	-0.029	-0.040*	-0.029	-0.011
	(0.006)	(0.011)	(0.054)	(0.020)	(0.023)	(0.020)	(0.006)
Market	0.036***	0.036	0.036	0.029*	0.031*	0.028*	0.024**
	(0.009)	(0.026)	(0.188)	(0.012)	(0.017)	(0.011)	(0.008)
Randomized experiment	-0.046***	-0.050	-0.050	-0.075*	-0.146**	-0.081*	-0.029**
	(0.013)	(0.031)	(0.128)	(0.044)	(0.058)	(0.044)	(0.014)
Benefit	0.028*	0.025	0.025	0.047**		0.047**	0.056***
	(0.012)	(0.026)	(0.326)	(0.022)		(0.022)	(0.012)
Specification							
Registration	0.034***	0.038	0.038	0.048***	0.052***	0.047***	0.015***
	(0.005)	(0.025)	(0.19)	(0.006)	(0.007)	(0.006)	(0.003)
Age	0.054	0.040***	0.040***	-0.098***	-0.096***	-0.104***	0.019
	(0.011)	(0.012)	(0.000)	(0.029)	(0.032)	(0.029)	(0.012)
Education	-0.051***	-0.037***	-0.037***	0.096***	0.095***	-0.101***	-0.018
	(0.011)	(0.012)	(0.002)	(0.029)	(0.032)	(0.029)	(0.012)
Interaction terms						-0.017***	
						(0.004)	

Publication

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Publication year	0.065***	0.066***	0.066**	0.078*	0.107**	0.082*	0.028*
	(0.012)	(0.020)	(0.018)	(0.043)	(0.049)	(0.043)	(0.014)
Published	-0.051***	-0.098***	-0.098***	-0.119**	-0.159**	-0.112**	-0.030*
	(0.009)	(0.021)	(0.002)	(0.054)	(0.068)	(0.055)	(0.017)
Study citations	0.020***	0.025***	0.025***	0.033***	0.040***	0.032***	0.012**
	(0.005)	(0.007)	(0.000)	(0.012)	(0.014)	(0.012)	(0.005)
Observations	842	668	668	668	588	668	634
Studies	27	22	22	22	19	22	22

Note: Column 1 is repeated from Table 5, Column 1. See the note of Table 5 for details.
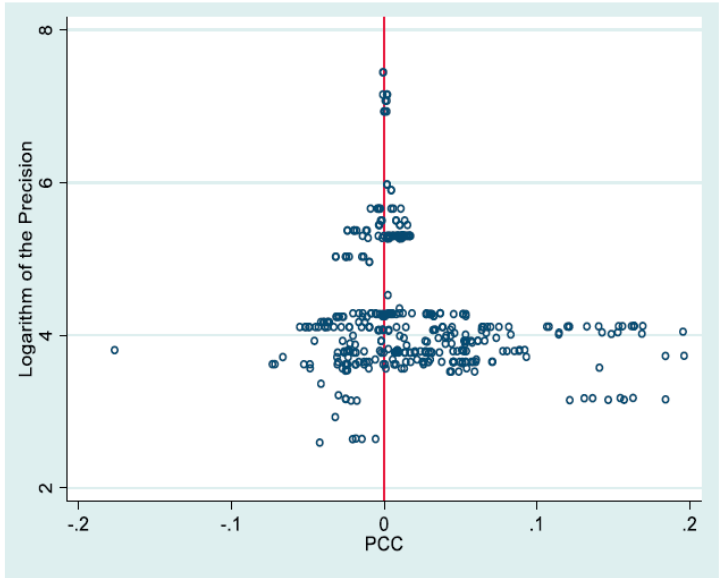
Appendix 10: Robustness checks – Figures

Figure A1. Funnel plot for studies that report cost intervention (N=710)

Note: See Figure 1.

Figure A2. Funnel plot for peer-reviewed studies (N=405)

Note: See Figure 1.

4. There's many a slip twixt cup and lip. Comparative meta-analysis of field experiment vs observational studies

Abstract

This study uses meta-regression analysis (MRA) techniques to compare genuine effects and publication bias of randomized field experiments versus quasi-experimental policy reforms aimed at business formalization. The analysis exploits a meta-dataset of 842 effects derived from 27 studies published until June 2019. We identify a positive yet insignificant effect on formalization resulting from randomized experiments and a non-significant negative effect associated with policy reforms. The MRA further detects severe upward publication bias for randomized studies implying that econometric rigor in the design and analysis is counteracted by a unanimous preference towards reporting positive findings. The results contribute to the larger debate about the role and relative weight of rigorous methods and theory in informing (formalization) policies.

4.1. Introduction

The past decade has seen a huge influx of studies assessing the impact of policy interventions seeking the formalization of informal firms. Next to the traditional observational studies relying on quasi-experimental evaluations, increasingly studies adopt randomized control trials (RCTs) for evaluating the effects of policy interventions on business formalization. RCTs are increasingly employed as they are considered to have several advantages compared to quasi-experimental studies. First, experimental designs require fewer assumptions (Bruhn and McKenzie, 2014). Second and related, RCTs allow to establish a clear causality between treatments and outcomes, and increase the internal validity (Duflo, 2004). Third, RCTs lend themselves to rigorous pilot studies (Duflo, 2006). Yet, RCTs have also been criticized for several reasons, including their narrowness in scope (Ravallion, 2020), their focus on the average with little validity of the increasingly frequent heterogeneity analyses (Deaton and Cartwright, 2018) and missing theoretical underpinnings (Deaton, 2010), to name just a few.

Notwithstanding their strengths and limitations, RCTs have gained popularity in studies of the informal economy and international organizations such as the World Bank started implementing experimental pilots aimed at promoting the formalization of informal firms. At the same time, quasi-experimental analyses about large-scale formalization reforms have

increased manifold as they lend themselves for the evaluation of programs rolled out on large scale.

The resulting findings are far from coherent and conclusive and a recent meta-analysis by Floridi et al. (2020) identifies that study design is a relevant source of heterogeneity. The open question addressed by the current study is whether randomized experiments provide more encouraging findings about business formalization compared to quasi-experimental studies. A meta-regression analysis (MRA) on two sub-samples of formalization studies, i.e. those representing randomized experiments and those representing quasi-experimental policy reforms, is conducted. Overall genuine effects, publication bias, and other sources of heterogeneity for the two types of designs are identified and compared.

4.2. Data and methods

Protocol

The identification of studies to be included in the analysis relies on the *PICOC* model (Petticrew and Roberts, 2008). We searched for studies assessing policy actions that promote formalization of already existing firms; we excluded studies focusing on the creation of new formal firms or the formality rate. The search for English language, empirical studies employing regressions-based analyses was conducted using Google Scholar, Scopus, and the World Bank Knowledge Retrieve. That search was complemented by manual identification using the reference lists of the identified papers. We employed several keywords and their synonyms for exhaustively covering the literature. To reduce the large number of retrieved studies, we limited the search to those articles using the same words of the query in the text (*allintext*) or in the title (*allintitle*). The data collection took place in two rounds by two authors separately and concluded in June 2019. The search identified 126 potentially eligible studies. After a two-stage selection process, we included 27 eligible studies (see Floridi et al. (2020) for detailed description of the search and the identified studies). Appendix 1 in the supplementary materials schematically presented the selection process using the PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Dataset

The study exploits a meta-dataset of 842 meta-effects from 27 studies. The median number of estimates per study is 32; the average is 31 and the maximum 106. The oldest study appeared in 2011, indicating that the literature is recent, and the most recent in 2018.

We include 14 peer-reviewed and 13 unpublished studies. Around half the estimates comes from 13 experimental studies (394 estimates) whilst the remaining 14 studies (414 estimates) adopt a quasi-experimental design. Appendixes 2 and 3 provide the list of studies with randomized and quasi-experimental approaches, respectively.

Almost all the estimates from quasi-experimental studies, 13 out of 14, assesses the impact of policies cutting the costs of registration. This is not surprising since most policy efforts aim at reducing the costs of formality inspired by the assumption that high costs prevent business formalization (De Soto, 2003). Conversely, field experiments implemented various strategies that can be split in three groups: 1) cost-reducing interventions, which are still the majority (10), 2) benefit-providing interventions, such as tax exemptions and credit facilitation, and 3) enforcement interventions, i.e., introducing punishments for informal firms.

Empirical approach

The empirical approach consists of three steps. We first display the overall average effects computed using arithmetic and weighted means without controlling for potential publication bias and heterogeneity behind the reported results. In line with Doucouliagos's seminal contribution (Doucouliagos, 2005) and Floridi et al.'s recent application (Floridi et al., 2020), we employ the partial correlation coefficient (PCC) to ensure comparable estimates across studies:

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

where PCC_{rs} denotes the partial correlation coefficient between a policy/regulatory change and formalization; r represents the reported regression specification of the primary study s; t_{rs} is the t-value and df_{rs} the degrees of freedom of each regression estimate. Using the PCC, we provide unweighted means and means weighted by the precision (inverse of standard error).

Following recent meta-analyses (Floridi et al., 2020; Demena and Afesorgbor, 2020), the second step inspects publication bias and the genuine effects via a funnel plot, Funnel Asymmetry Test (FAT) and Precision Estimates Test (PET). The funnel plot, a scatter diagram, displays the estimated effects on the horizontal axis and their precision on the vertical axis. In the absence of publication bias, the plot should be symmetrical; in contrast, an asymmetrical plot suggests publication bias (Demena and van Bergeijk, 2017). This method of inspecting publication bias is subjective as it uses visual inspection. Conversely, FAT and PET are more formal statistical approach devised by Stanly (2005).

The third step investigates other sources of heterogeneity using the General-to-Specific multivariate MRA approach (Stanley and Doucouliagos, 2012; Floridi et al., 2020; Demena and Afesorgbor, 2020). To explain potential moderating factors of the divergent results, we augment the FAT and PET approach by incorporating the identified moderator variables as listed in Appendix 4. The MRA adopts a multilevel mixed effects (MEM) model with a precision weighting scheme as it lends itself to addressing inter-study and intra-study dependencies. As recommended by Doucouliagos and Laroche (2009), the MEM estimation procedure is widely applied in recent meta-analyses (van Bergeijk et al., 2019; Balima et al., 2020; Floridi et al., 2021)

We excluded 34 outliers (roughly 4% of the total estimates) and performed the analysis on 808 meta-effects to increase precision. Doing so, we rely on Hadi (1994) to filter out potential outliers in both reported effects and their standard errors. The procedure is frequently applied in a multivariate outlier dataset (Iršová and Havránek, 2013; Demena, 2015; Floridi et al., 2020). Including all estimates does not alter the main findings.

4.3. Results and discussion

We start the analysis with the overall average effect by type of intervention (Table 1). Randomized experiments report considerably higher effects compared to quasi-experimental studies assessing policies and reforms. This finding is reinforced when precision weights are used suggesting that the methodological rigor of an experiment identifies the true effects better. However, the simple averages do not account for sources of bias and heterogeneity.

Figure 1 displays the funnel plot of all estimated effects. The plot suggests the presence of upward publication bias for both types of interventions, the bias among the experimental

estimates (grey circles) seems to be more pronounced. At first glance, quasi-experimental estimates (black circles) are symmetrically distributed around their most precise estimate, which is slightly greater than 0. The experimental estimates, in contrast, form an asymmetrical funnel plot; the most precise estimates are close to 0 but among the imprecise estimates there is a much larger number of estimates on the right-hand side of the dashed line compared to the left-hand side. This indicates that disproportionately many more positive estimates are reported from randomized experiments, suggesting that publication bias explains the more common positive findings.

Table 2 provides the results of the related FAT-PET. The FAT-PET detects upward bias for both randomized experiments and quasi-experimental studies. However, the former shows a significant upward bias confirming the visual results from Figure 1. The average effects identified by the PET is almost zero and non-significant for both types of policy actions, indicating that across study type no impact on firm formalization is found. However, the results might be driven by study heterogeneity. Therefore, we proceed with a multivariate MRA for each type of intervention (Table 3).

The MRA results confirm the presence of small effects. Quasi-experimental studies show a negative and statistically significant effect on firm formalization (-0.051 PCC, $p<0.01$), indicating that intervention beneficiaries formalize less compared to before the intervention or the control groups. Experiments similarly show a negative albeit insignificant impact on business formalization. The results reveal that, no matter the rigor of the study, in the best case zero impact is found on average. The mitigating factors differ for the two study designs (Figure 2 and Appendix 5). Experimental studies show positive impacts if targeted towards micro and small firms, if benefit or enforcement mechanisms are employed contrary to cost-reducing interventions and if registration is considered as a formality indicator. All are statistically significant mitigating factors. In turn, quasi-experiments have statistically significant and negative mitigating factors: namely, year and sector fixed effects and whether the study has been reviewed. The positive and significant mitigating factors are market fixed effects, the publication year and study citations. These findings indicate that despite experimental and quasi-experimental studies analyzing a similar policy problem, they differ substantially in their set-up.

Yet, there is one concerning finding, the earlier identified publication bias (Table 2, bivariate FAT) is further reinforced and particularly strong for randomized experiments. This result

challenges the claims that randomizations can address publication bias, or minimize its presence compared to non-experimental studies (Duflo et al., 2007). Overall, the consolidated evidence suggests that p-hacking is of limited concern for the non-experimental studies presented here since they show conservative results while nevertheless suffering from publication bias (Ravallion, 2020). Concerning RCTs, we observe a larger risk of distorting the evidence base, since the findings tend to be more encouraging for identifying impact and suffer from publication bias, suggesting that policies relying on RCTs can be misled in the case of firm formalization

4.4. Conclusions

This study presents a meta-analysis comparing the impact estimates from randomized experiments with those from quasi-experimental studies for the case of firm formalization policies in developing countries. The analysis exploited a meta-dataset with 842 effects from 27 studies (394 estimates implementing 13 experimental studies and 414 estimates adopting 14 quasi-experimental design).

The MRA indicates that both types of actions have limited impact. Estimates from experiments show insignificant results but with substantial upward publication bias. In contrast, quasi-experimental evaluations of policies and reforms provide significantly negative impacts with a comparably small upward bias. Thus, although randomized experiments are the more robust design, they suffer from severe publication bias.

In sum, whilst randomized experiments are a valid instrument for testing pilot policies, we have to be weary of introducing (desirability) bias in the publication process. The results contribute to the larger debate about the role and relative weight of rigorous methods and theory in informing (formalization) policies.

Concerning the nature of the policy under study, firm formalization, the consolidated findings question whether large scale firm formalization can be achieved with the interventions that have been implemented so far and hint at the need for new, potentially more theoretically informed, approaches.

Tables and Figures

Table 1: Average impact by type of intervention

	Means	Weighted means
Policies	0.018	0.001
	(0.002)	(0.0003)
Randomized experiments	0.051	0.078
	(0.004)	(0.007)
N	414	394

Note: Standard errors are in parentheses.

Table 2: Bivariate MRA for the FAT-PET, by type of intervention

	Policies	Randomized experiments
Genuine effect/PET	-0.001	0.005
	(0.001)	(0.019)
Bias/FAT	0.856**	1.952*
	(0.368)	(1.018)
Observations	414	394
Studies	14	13

Note: **/* indicates statistical significance at the 5/10% level, respectively. Standard errors are in parentheses.

Table 3: Multivariate MRA - Heterogeneity analysis by type of intervention

	Policies	Randomized experiments
Genuine effect/PET	-0.052***	-0.084
	(0.010)	(0.170)
Bias/FAT	0.682**	4.076***
	(0.263)	(1.211)

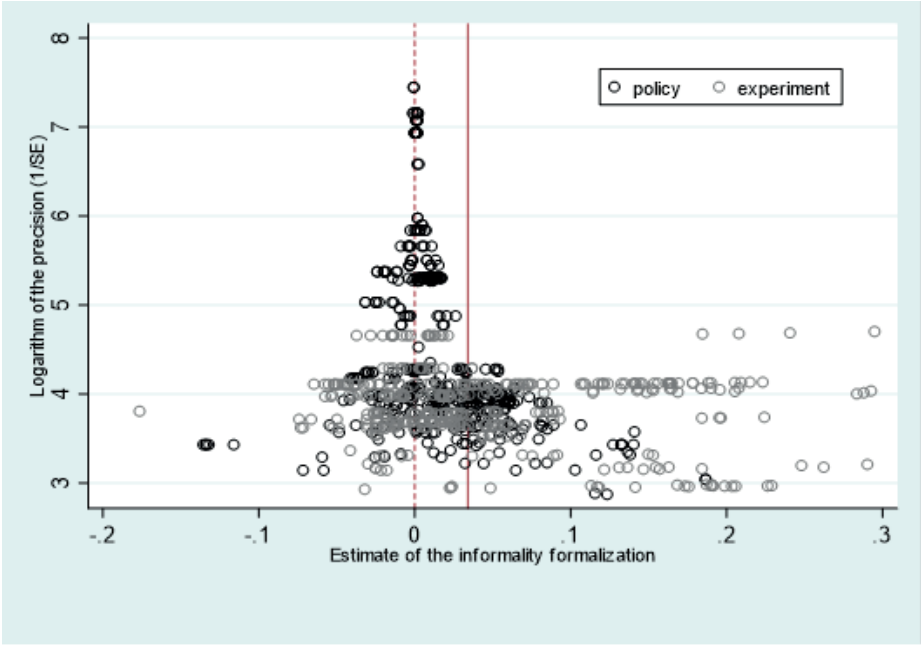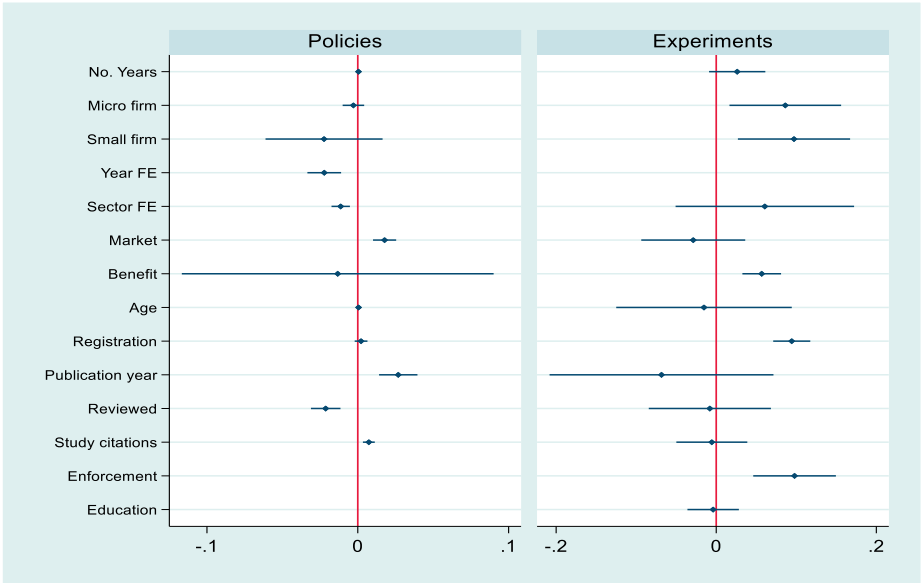*Note:* ***/** indicates statistical significance at the 1/5% level, respectively. Standard errors are in parentheses.

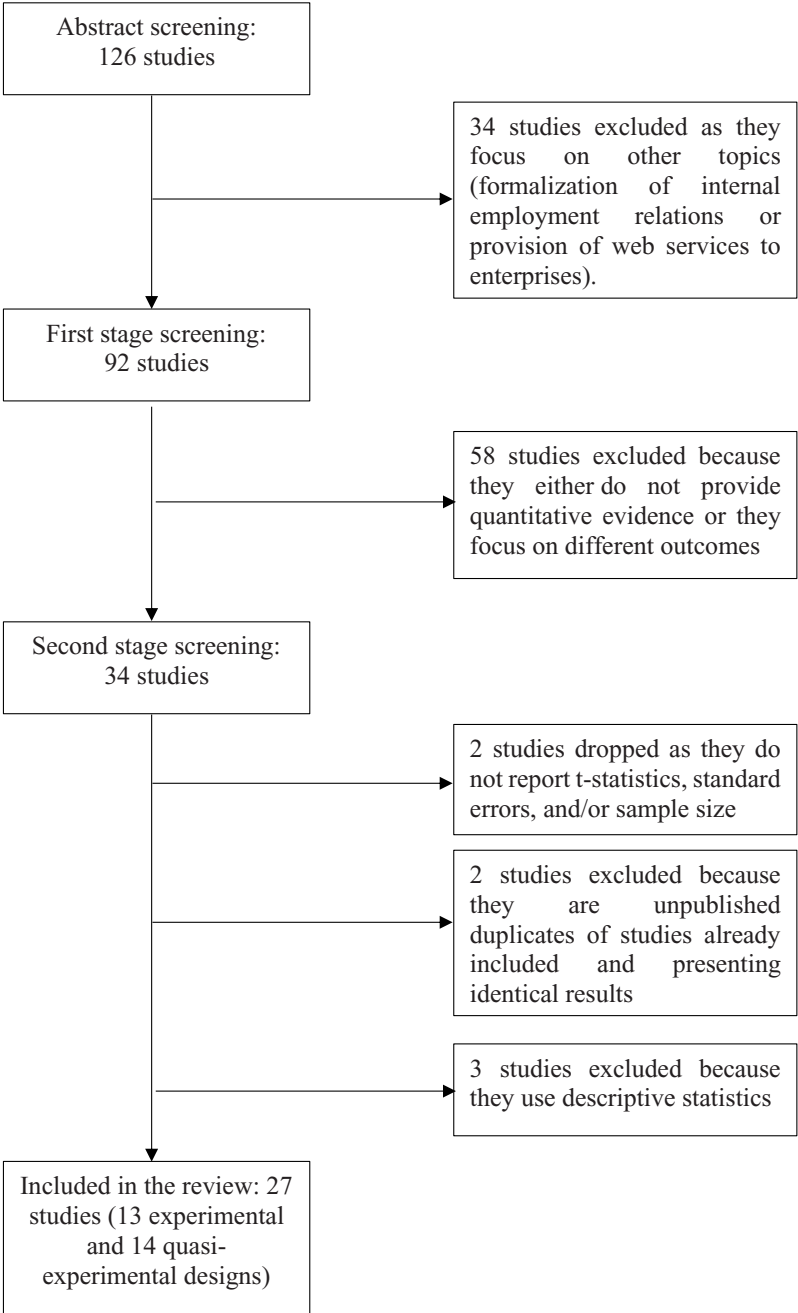Figure 1: Funnel plot policies vis-à-vis experiments (N=808)

Figure 2: Graphical representation of the multivariate MRA results

Appendix 1: PRISMA diagram

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┌─────────────────────────┐
│   Abstract screening:   │
│      126 studies        │
└─────────────────────────┘
              │
              │         ┌──────────────────────────────────┐
              │         │ 34 studies excluded as they      │
              ├────────▶│ focus on other topics            │
              │         │ (formalization of internal       │
              │         │ employment relations or          │
              │         │ provision of web services to     │
              │         │ enterprises).                    │
              ▼         └──────────────────────────────────┘
┌─────────────────────────┐
│  First stage screening: │
│       92 studies        │
└─────────────────────────┘
              │
              │         ┌──────────────────────────────────┐
              │         │ 58 studies excluded because      │
              ├────────▶│ they either do not provide       │
              │         │ quantitative evidence or they    │
              │         │ focus on different outcomes      │
              ▼         └──────────────────────────────────┘
┌─────────────────────────┐
│ Second stage screening: │
│       34 studies        │
└─────────────────────────┘
              │
              │         ┌──────────────────────────────────┐
              ├────────▶│ 2 studies dropped as they do     │
              │         │ not report t-statistics, standard│
              │         │ errors, and/or sample size       │
              │         └──────────────────────────────────┘
              │         ┌──────────────────────────────────┐
              │         │ 2 studies excluded because       │
              ├────────▶│ they are unpublished             │
              │         │ duplicates of studies already    │
              │         │ included and presenting          │
              │         │ identical results                │
              │         └──────────────────────────────────┘
              │         ┌──────────────────────────────────┐
              ├────────▶│ 3 studies excluded because       │
              │         │ they use descriptive statistics  │
              ▼         └──────────────────────────────────┘
┌─────────────────────────┐
│ Included in the review: 27│
│ studies (13 experimental │
│ and 14 quasi-            │
│ experimental designs)   │
└─────────────────────────┘
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Source: Authors' elaboration from Floridi et al. (2020).

Appendix 2: List of primary studies implementing field experiments (RCTs)

- Benhassine, N., McKenzie, D., Pouliquen, V., and Santini, M. (2015). *Finding a path to formalization in Benin: early results after the introduction of the entreprenant legal status*. World Bank Policy Research Working Paper No. WPS7510. The World Bank.

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

- Cabrera, J.M., Cid, A., and Bernatzky, M. (2016). The effect of one-on-one assistance on the compliance with labor regulation. A Field Experiment in Extremely Vulnerable Settings. No. 1605. Facultad de Ciencias Empresariales y Economia. Universidad de Montevideo.

- Campos, F., Goldstein, M.P., and McKenzie, D.J. (2015). Short-Term Impacts of Formalization Assistance and a Bank Information Session on Business Registration and Access to Finance in Malawi. World Bank Policy Research Working Paper No. WPS7183. The World Bank.

- Campos, F., Goldstein, M., and McKenzie, D.J. (2018). *How Should the Government Bring Small Firms into the Formal System? Experimental Evidence from Malawi*. World Bank Policy Research Working Paper No. WPS8601. The World Bank. Washington DC.

- De Andrade, G.H., Bruhn, M., and McKenzie, D.J. (2014). A Helping Hand or the Long Arm of the Law? Experimental Evidence on what Governments can do to Formalize Firms. *The World Bank Economic Review,* 30(1), 24-54.

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

- De Giorgi, G., Ploenzke, M., and Rahman, A. (2015). *Small Firms' Formalization: The Stick Treatment*. World Bank Policy Research Paper No. 7318. The World Bank.

- De Giorgi, G., Ploenzke, M., and Rahman, A. (2017). Small Firms' Formalisation: The Stick Treatment. *Journal of Development Studies*, *54*(6), 983-1001.

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

- Galiani, S., Meléndez, M., and Ahumada, C.N. (2017). On the Effect of the Costs of Operating Formally: New Experimental Evidence. *Labour Economics, 45: 143-157.*

- Kaiser, T., and Menkhoff, L. (2018). *Active learning fosters financial behavior: Experimental Evidence*. DIW Discussion Papers No. 1743, DIW Berlin, German Institute for Economic Research.

- Lenz, A.K. (2017). Studies on entrepreneurship and formalization in Brazil. Doctoral dissertation. The School of Public Business and Administration (EBAPE)- Getulio Vargas Foundation, Rio de Janeiro.

Appendix 3: List of primary studies evaluating policy reforms and programs (quasi-experiments)

- Aparicio, G., (2014). *Does Formality Improve Firm Performance? Evidence From a quasi-Experiment in Mexico*. Boston University Working Paper. Boston, MA: Boston University.

- Bruhn, M. (2008). License to sell: the effect of business registration reform on entrepreneurial activity in Mexico. *The World Bank*.

- Bruhn, M. (2011). License to sell: the effect of business registration reform on entrepreneurial activity in Mexico. *Review of Economics and Statistics*, *93*(1), 382-386.

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

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

- Díaz, J.J., Chacaltana, J., Rigolini, J., and Ruiz, C., (2018). Pathways to Formalization: Going Beyond the Formality Dichotomy. IZA, Discussion Paper Series No. 11750. IZA.

- Fajnzylber, P., Maloney, W.F., and Montes-Rojas, G.V. (2011). Does Formality Improve Micro-Firm Performance? Evidence from the Brazilian SIMPLES Program. *Journal of Development Economics, 94(2), 262-276.*

- Goldszmidt, R., Behr, P., Zucco, C., Lenz, A.K., Farias, L.E.G., Valdivia, M., and Grade, P. (2018). *Microcredit Impacts: Evidence from a Large-scale Observational Study in Brazil*.

- Monteiro, J.C., and Assunção, J.J. (2012). Coming Out of the Shadows? Estimating the Impact of Bureaucracy Simplification and Tax Cut on Formality in Brazilian Microenterprise. *Journal of Development Economics, 99(1), 105-115.*

- Piza, C. (2016). Revisiting the Impact of the Brazilian SIMPLES Program on Firms' Formalization Rates. Policy Research Working Paper 7605, World Bank Group.

- Piza, C. (2018). Out of the Shadows? Revisiting the impact of the Brazilian SIMPLES program on firms' formalization rates. *Journal of Development Economics,* 134, 125-132.

- Rocha, R., Rachter, L., and Ulyssea, G. (2014). Do entry regulation and taxes hinder firm creation and formalization? Evidence from Brazil. *Rio de Janeiro, Brazil. Instituto de* Economia, Universidade Federal Do Rio de Janeiro.

- Rocha, R., Ulyssea, G., and Rachter, L. (2018). Do lower taxes reduce informality? Evidence from Brazil. *Journal of Development Economics*, 134, 28-49.

- Rothenberg, A. D., Gaduh, A., Burger, N. E., Chazali, C., Tjandraningsih, I., Radikun, R., Sutera, C. and Weilant, S. (2015). Rethinking Indonesia's informal sector. *World Development*, 80, 96-113.

Appendix 4: Definition and descriptive statistics of the collected variables

Moderator Variables	Definition	Randomized experiment	Quasi-experimental
Outcome Characteristics			
No. Exp.	Number of explanatory variables included	14.93 (8.55)	29.07 (35.95)
Data Characteristics			
No. Time	The number of years of the data used	3.09 (0.88)	4.08 (3.22)
No. Obs.	Logarithm of number of observations	7.66 (0.79)	8.76 (1.89)
Micro firm	=1 if data come from micro firms (any micro, small or medium firms as a base)	0.30 (0.46)	0.80 (0.40)
Small firm	=1 if data come from small firms	0.54 (0.50)	0.04 (0.20)
Estimation Characteristics			
OLS	=1 if estimation method is OLS, (two-stage least squares, probit and others as a base)	0.71 (0.45)	0.44 (0.50)
Year FE	=1 if year fixed effects are included, 0 otherwise	-°	0.42 (0.49)
Sector FE	=1 if sector fixed effects are included, 0 otherwise	0.16 (0.37)	0.41 (0.49)
Market	=1 if market or location fixed effects are included, 0 otherwise	0.88 (0.33)	0.57 (0.50)
Intervention Policy			
Benefit	=1 if intervention is providing benefit (reducing cost and time is the base)	0.24 (0.43)	0.0 (0.05)
Enforcement	=1 if intervention is threat or punishment	0.20 (0.40)	-°
Information	=1 if information is provided, 0 otherwise	0.67 (0.47)	0.08 (0.27)
Specification Characteristics			
Registration	=1 if formalization indicator is registration (social protection and other indicators as a base)	0.45 (0.50)	0.37 (0.48)
License	=1 if formalization indicator is license	0.31 (0.46)	0.52 (0.50)
Gender	=1 if gender of the business owner is included, 0 otherwise	0.27 (0.45)	0.46 (0.50)
Age	=1 if age of the business owner is included, 0 otherwise	0.22 (0.41)	0.50 (0.50)
Education	=1 if education of the business owner is included, 0 otherwise	0.14 (0.34)	0.50 (0.50)
Household	=1 if specification controls for household size, 0 otherwise	0.02 (0.14)	0.26 (0.44)
Publication Characteristics			
Publication year	Logarithm of the publication year of the study (base, 2008)	2.39 (0.14)	2.29 (0.34)
Published	=1 if published in a peer-reviewed journal, 0 otherwise	0.51 (0.50)	0.72 (0.45)
Study citations	Logarithm of citations in Google Scholar per age of the study, as of June 2018	1.60 (0.96)	1.91 (0.95)
Journal impact	Recursive journal impact factor from RePEc	0.44 (0.62)	0.47 (0.35)

Note: Standard deviation in parentheses. ° Not present in the sub-sample.

Appendix 5: Multivariate MRA investigating potential sources of heterogeneity across studies

Moderator variables	(1) Specific (policies)	(2) Specific (RCTs)	(3) MEM (policies)	(4) MEM (RCTs)	(5) CDA (policies)	(6) CDA (RCTs)	(7) Wild bootstrap	(8) Wild bootstrap
PET	-0.059***	-0.084	-0.052***	-0.084	-0.059***	-0.084	-0.059***	-0.084
	(0.008)	(0.173)	(0.010)	(0.169)	(0.064)	(0.205)	(0.002)	(0.728)
Bias	0.664***	4.076***	0.682**	4.076***	0.665*	4.076**	0.665	4.076**
	(0.220)	(1.235)	(0.263)	(1.211)	(0.379)	(1.809)	(0.304)	(0.026)
Data								
No. Years	0.001	0.026	0.001*	0.026	0.0004*	0.026	0.0004	0.026
	(0.0002)	(0.018)	(0.0003)	(0.018)	(0.0001)	(0.022)	(0.134)	(0.52)
Micro firm	-0.000	0.086**	-0.003	0.086**	-0.0001	0.086	-0.0001	0.086
	(0.003)	(0.036)	(0.004)	(0.036)	(0.004)	(0.050)	(1)	(0.252)
Small firm	-0.021	0.097**	-0.022	0.097**	-0.021*	0.097**	-0.021	0.097*
	(0.016)	(0.036)	(0.019)	(0.036)	(0.011)	(0.043)	(0.174)	(0.062)
Estimation and Interventions								
Year FE	-0.022***	-°	-0.022***	-°	-0.022***	-°	-0.022***	-°
	(0.004)		(0.006)		(0.006)		(0.008)	
Sector FE	-0.013***	0.061	-0.011***	0.061	-0.013***	0.061	-0.013***	0.061
	(0.002)	(0.058)	(0.003)	(0.057)	(0.003)	(0.053)	(0.01)	(0.362)
Market	0.017***	-0.029	0.018***	-0.029*	0.017***	-0.029	0.017***	-0.029
	(0.004)	(0.034)	(0.004)	(0.033)	(0.004)	(0.039)	(0)	(0.736)
Benefit	-0.015	0.057***	-0.013	0.057***	-0.015*	0.057***	-0.015	0.057***
	(0.054)	(0.013)	(0.052)	(0.012)	(0.008)	(0.008)	(0.17)	(0)
Enforcement		0.098***		0.098***		0.098**		0.098*
	-°	(0.027)	-°	(0.026)	-°	(0.036)	-°	(0.064)
Specification								
Registration	0.0004	0.094***	0.002	0.094***	0.001	0.094***	0.001	0.094
	(0.002)	(0.012)	(0.002)	(0.012)	(0.003)	(0.031)	(0.882)	(0.182)
Age	0.001	-0.015	0.001	-0.015	0.001***	-0.015	0.001***	-0.013
	(0.001)	(0.057)	(0.001)	(0.056)	(0.0001)	(0.047)	(0)	(0.786)
Education	0.000	-0.004	0.000	-0.004	0.000	-0.004	0.000	-0.004
	(0.000)	(0.017)	(0.000)	(0.016)	(0.000)	(0.007)	(0.000)	(0.786)
Publication								
Publication year	0.031***	-0.068	0.027***	-0.068	0.031***	-0.068	0.031***	-0.068
	(0.005)	(0.073)	(0.006)	(0.071)	(0.007)	(0.083)	(0.008)	(0.528)
Published	-0.024***	-0.008	-0.021***	-0.008	-0.024***	-0.008	-0.024***	-0.008
	(0.003)	(0.040)	(0.005)	(0.039)	(0.005)	(0.049)	(0.01)	(0.972)
Study citations	0.008***	-0.006	0.007***	-0.006	0.008	-0.006	0.008***	-0.006
	(0.002)	(0.023)	(0.002)	(0.023)	(0.379)	(0.027)	(0)	(0.852)
Obs. (*N*)	414	394	414	394	414	394	414	394
Studies	14	13	14	13	14	13	14	13
LR test			7.12	35.5				
p>chi²			0.003	0.000				
Log likelihood			-773.52	-1097.19				

Note: The dependent variable is the partial correlation coefficient of the formalization estimates. Figures in parenthesis are standard errors, except for Columns (7) and (8), which are *p*-values. ***/**/* indicates statistical significance at the 1/5/10% level, respectively. All columns use inverse variance weights. ° Not present in the sub-sample.

Columns (1) and (2) report estimates using the general-to-specific (G-to-S) modelling approach from including all potential moderator variables in the general specification without adjusting standard errors. The empirical concern of estimating including all potential moderate variables is multicollinearity because of the large number of moderator variables that are presented in Appendix 4. Following existing guidelines of the Meta-Analysis in Economics Research Network (MAER-Net) (Stanley et al., 2013 and recently by Havránek et al., 2020), we use the G-to-S approach. The procedure starts by including all 21 potential moderator variables listed in Appendix 4 in the general specification. Next, it reduces to a specific condition by systematically removing insignificant variables, one at a time, until only significant variables remain. Applying this procedure, we exclude 7 moderator variables that are statistically insignificant at least at the 10% level. The joint F-test

for the 14 moderator variables included in the model rejects the null hypothesis of a zero-joint effect, $F_{(14, 826)}=18.19$ (p-value=0.000). In addition, using the G-to-S approach allows us to reduce the potential loss of degrees of freedom on top of the potential multicollinearity concern.

Columns (3) and (4) show the results from a mixed-effects multilevel (MEM) estimation employing restricted maximum likelihood. MEM is preferred as it accounts for both the between and within-study dependence. Regardless, results are consistent with two other alternative estimation approaches, as discussed below.

As a robustness checks, Columns (5) and (6) present estimates from a clustered data analysis (CDA) with study level clustered standard errors. The CDA accounts for the within-study correlation by applying study-level clustered standard errors and a common approach chosen by the majority of the meta-analysts.

However, when the number of studies to cluster is small as in our case, some studies show that standard adjustment for clustering poses an additional statistical problem. Thus, we also employ an alternative to simple clustering, making use of the wild bootstrap clustering that was derived for clustering with a small number of clusters. Columns (7) for quasi-experimental and (8) for randomized experiment report the estimates using a non-standard cluster adjustment, the wild bootstrap approach.

5. A game worth the candle? A meta-analysis of the effects of formalization on firm performance

Abstract

Does formalization generate benefits for previously informal firms? We systematically assessed 20 primary studies in a meta-analysis of African, Asian and Latin American firms. The studies are published between 2011 and 2019 and provide 1,274 performance estimates: 35% of the estimates show significantly positive and 59% insignificant effects. The FAT-PET analysis suggests a small impact of formalization on firm performance. We also employ a multivariate analysis: the overall genuine effect is modest. There is a positive role for information and time for effects to materialize; more rigorous designs and recent studies tend to identify smaller and more dispersed effects.

Keywords**:** meta-regression analysis, informality, formalization, firm performance, developing countries

5.1. Introduction

Informal enterprises represent a significant part of the private sector across many countries and provide livelihood for billions of people (La Porta and Shleifer, 2014). An estimated 80% of enterprises in developing economies, that is approximately 280-340 million enterprises, are informal.[5]

The relevance of informal enterprises worldwide and their potential contribution to economic growth motivates governments and policymakers to implement policies addressing their status of informality. The prevalent approach consists of promoting formalization to stimulate the transition towards a formal economy (ILO, 2015; Benjamin et al., 2014). Formalization of informal enterprises is associated with improved performance, access to loans and other business development services. Additionally, formalization of enterprises is thought to improve the working conditions of employees, including the provision of social security. Lastly, formalization is not only considered beneficial for the formalizing

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[5] For further details see: http://www.cgap.org/blog/closing-msme-credit-gap-informal-sector [Last accessed: September 9, 2020].

enterprises, but it also brings benefits for governments by unleashing the growth potential of informal firms and generating tax revenues (Joshi et al., 2014).

For all these reasons, formalization of informal enterprises is a core strategy of International Cooperation and Development Agencies, such as the World Bank. In the last two decades, the World Bank supported campaigns for the implementation of the so-called One Stop Shop Programs that reduce the procedures and costs of formalizing a business. In a similar vein, the International Finance Corporation set up the Doing Business Project for governments around the world to implement reforms that facilitate the registration of businesses (De Mel et al., 2013; International Finance Corporation, 2009). The program has been successful in decreasing the time and costs associated with registering a business. Yet, there is no consensus as to whether the program achieves the objective of the stimulating formalization of informal firms (Campos et al., 2015; Bruhn and McKenzie, 2014).

Similar to interventions that reduce the costs of formalization, policies based on increasing benefits and/or enforcement have also shown limited impact as reported by a recent meta-analysis consolidating the evidence on policies to promote formalization (Floridi et al., 2020). In addition, Bruhn and McKenzie (2014) conducted a qualitative review of empirical studies investigating interventions that promote enterprise formalization and similarly conclude that there is, at most, a modest impact.

The limited impact of policies seeking formalization raises the question of whether enterprises switching formality status benefit from that decision. The resilience of informal firms is linked to both the high costs of operating formally and the limited perceived benefits of formalization (Perry et al., 2007; Maloney, 2004). The limited anticipated advantages of formalization may undermine the efforts of formalization policies.

A recent but growing body of literature empirically explores the effects of formalization on firm performance (Benhassine et al, 2018; Demenet et al., 2016; Rothenberg et al., 2016; Boly, 2015; Bruhn and Mc Kenzie, 2014; Rand and Torm, 2012; De Mel et al., 2011; Fajnzylber et al., 2011). The existing empirical studies present contrasting evidence concerning the effects of formalization on business performance. Figure 1 represents the extent of disagreement across 1,274 reported estimates from 20 studies on formalization and performance that we collected. The literature reports 35% significantly positive effects but also 6% significantly negative effects. The majority of the estimates (59%) are insignificant.

Of these insignificant findings, 36% have positive coefficient estimates and 23% negative ones (Figure 1). Figure 2 presents a box plot of the estimates reported within and across the individual studies, illustrating that both within and between study heterogeneity is substantial.

[Figure 1]

Figure 2 also illustrates graphically that most confidence intervals are situated around zero and thus point to null effects. Another striking feature of the existing studies on the impact of formalization on performance is that the reported estimates of primary studies are, on average, constant over time (Figure 3). Thus, despite various methodological improvements over time, the existing evidence identifies a small positive average effect that does not even hint at the possibility of a positive trend. Moreover, the most recent studies, in particular those published in the last five years, exhibit more variation in outcomes, suggesting that instead of converging to a general consensus on the impact of formalization on firm performance, the existing interventions have not resulted in generalizable results across contexts, methods, designs and outcome indicators. Given the heterogeneity of the findings, the current study conducts a meta-analysis in order to (1) estimate the overall average effect and significance of the impact of formalization on firm performance, and (2) explain the reasons behind the different reported estimates by assessing the underlying drivers in an attempt to identify general patterns.

[Figure 2]

[Figure 3]

A recent meta-analysis assesses the impact of various policy actions on the formalization decisions of previously informal firms (Floridi et al., 2020). Another meta-analysis by Cravo and Piza (2019) estimates the impact of various business-support services on firm performance and shows that, overall, those services improve business performance. However, to date, no meta-analysis has been conducted examining the effect of formalization on firm performance.

This study makes four important contributions to the literature. First, the study is the first meta-analysis synthesizing the heterogenous empirical evidence on performance effects of formalization of informal firms. Given the heterogeneity of the existing findings (compare

Figures 1, 2, and 3), a meta-analytical approach allows us to identify the average genuine effect of formalization on business performance along with the main underlying sources of heterogeneity. Second, the study contributes to the ongoing debate about the drivers of business formalization by assessing which theory is most supported by the existing empirical evidence. This will allow us to propose not only evidence based, but also theoretically informed steps forward. Third, we disentangle whether polices aimed at firm formalization do improve firm performance beyond self-induced[6] formalization. This aspect of our study has important implications for policymaking since it can help to further refine the existing approaches. Fourth, we study whether there is room for self-induced formalization since understanding the role of voluntary formalization can further shape and refine the on-going push for formalization.

The remainder of the paper is organized as follows: Section 2 presents a brief overview of the conceptual literature on informality and firm performance. Section 3 describes the data and the meta-regression approach. Detailed results are shown in Section 4. Section 5 offers a conclusion.

5.2. Review of the Literature

Notwithstanding the efforts put in place to simplify the regulatory framework and to cut the time and monetary costs of formalization, many informal enterprises opt against formalization. In particular, the limited effects of reforms that cut the costs of formalization raise the question of whether enterprises formalizing their business obtain any advantages. The underlying debate revolves around two main aspects: first, whether there are advantages of operating informally, and second, whether formalization has benefits.

One group of scholars argues that formalization can unlock the hidden potential of informal enterprises (De Soto, 2003 and 1990). This view, also referred to as the exclusion model, contends that the benefits of formalization range from improved revenues to better access to advertisement and marketing services, from better access to credit to improved property rights protection (Farazi, 2014; De Soto, 1990). In contrast, informality is associated with lower profits and limited access to credit and business development activities.

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[6] We use the term self-induced formalization to refer to firm formalization over time independent of a policy that provides incentives for formalization.

Another group of scholars, who support the rational exit model, criticizes the exclusion model for underestimating the advantages associated with informality (Perry et al., 2007; Maloney, 2004). Only a minority of informal enterprises can reap the benefits of formalization because most informal businesses are either too small or endowed with too little capital for gaining any advantages from formalization. The rational exit or voluntarist approach suggests that informality is often the expression of an optimal choice made by informal entrepreneurs who rationally opt for operating outside the formal regulatory framework (Perry et al., 2007; Maloney, 2004). While the voluntarist approach acknowledges that formality is associated with better performance, it emphasizes as well that there are potential benefits of operating informally. While small-scale activities depending on limited capital may not gain from formalization, larger informal enterprises might benefit from formalizing. A nuanced version of the voluntarist approach considers informality as an incubation stage for new firms that will benefit most by formalizing at a later stage (Williams et al., 2017).

In contrast to those two rather optimistic views on formality, other scholars are sceptical about the capacity of informal firms to benefit from formalization, as these firms tend to be too small, endowed with too little capital, and inherently less productive compared to formal firms (Baily et al., 2006; Farrell, 2004). This view, also referred to as the parasite model, suggests that firms stay in the informal economy to avoid the costs of regulation and that informal firms benefit from their status by avoiding taxes (Baily et al., 2006; Farrell, 2006 and 2004). The parasite model argues that registration of informal enterprises is not likely to increase firm productivity and profitability and is not associated with particular benefits; on the contrary, formalization is an excessive cost that the majority of the informal enterprises cannot afford.

The fourth group of authors argue that informal enterprises conduct marginal activities, operate in a different market and do not damage formal enterprises (La Porta and Shleifer, 2014; 2008). According to this dual economy view, informal enterprises represent survival activities that employ low levels of capital and are run by entrepreneurs with low levels of education. Nonetheless, it is acknowledged that these activities provide livelihoods for millions of people (La Porta and Shleifer, 2014; 2008). The dual economy view argues that informal firms do not obtain any benefits from formalization as they are too small. Different from the parasite view, dual economy supporters argue that there are no advantages associated with operating informally since informal businesses are survival activities that

have the only objective of alleviating poverty. Yet, this purely survivalist understanding of informal activities has been challenged in favour of acknowledging the heterogeneity of informal activities. The literature has identified at least two types of informal businesses: growth-oriented upper tier activities and survival lower tier activities (Floridi et al., 2016; Berner et al., 2012; Grimm et al., 2012; Williams et al., 2012).

As formalization of enterprises has become a central tenet of private sector policies, scholars have started to investigate the empirical effects on firm performance and the potential benefits associated with formalization. An increasing number of pilot studies and analyses of formalization polices has emerged as a result. The empirical literature can be divided into two main strands: (i) studies comparing formal and informal enterprises, and (ii) studies focusing on firms that switch from informal to formal status.

First strand of the literature: Comparison between formal and informal enterprises

The first group of studies estimates the impact of formality on firm performance by comparing enterprises with different legal status, i.e. formal versus informal (Williams et al., 2017; Araujo and Rodrigues, 2016; Distinguin et al., 2016; Wellalage and Locke, 2016; Williams and Kedir, 2016; Sharma, 2014; Jaramillo, 2013; Benjamin and Mbaye, 2012; Caro et al., 2012; De Vries, 2010; McCulloch, 2010; McKenzie and Sakho, 2010; Fajnzylber et al., 2009; Gelb et al., 2009; Cárdenas and Rozo, 2006). The majority of these studies report a positive effect of formality on profitability, access to loans, and other firm performance indicators such as access to inputs and services. For instance, McKenzie and Sakho (2010) report that in Bolivia formality improves the performance of medium-sized enterprises but reduces the profits of smaller and larger firms. Fajnzylber et al. (2009) show that formal enterprises exhibit higher profits and informal firms are most likely to formalize when they are close to their optimal size.

However, the inherent difference between formal and informal firms could introduce a serious bias to this type of analyses since the decision to operate formally is likely sensitive to endogenous characteristics such as the size of the firm or the ability of the entrepreneur (Benjamin and Mbaye, 2012; De Vries, 2010; McKenzie and Sakho, 2010). It is likely that firms with higher revenues become more visible and opt to formalize (Boly, 2015; McKenzie and Sakho, 2010). Thus, selection bias could be at the root of the differences found. In addition, reverse causality might also be at play in these types of studies since it is not

possible to clearly establish whether formalization improves firm performance or, on the contrary, firms with better performance opt to formalize.

Second strand of the literature: informal firms switching to formality

The second strand of the empirical literature assesses the effects of formalization on business performance by comparing switchers with non-switchers; in other words, these studies explore the impact of formality on firms that change their status from operating informally to operating formally (Benhassine, 2018; Alcázar and Jaramillo, 2016; Demenet et al., 2016; Rothenberg et al., 2016; Boly, 2015; Campos, 2015; Bruhn and McKenzie, 2013; De Mel et al., 2013; Rand and Torm, 2012; De Mel et al., 2011; Fajnzylber et al., 2011). This literature is fairly recent, as the oldest study only dates back to 2011. The considered performance indicators range from profits to access to credit, from access to inputs to trust in government institutions. Compared to the other strand of the literature, this group of studies tends to report smaller benefits for firms that register their business. This paper focuses on this second strand of the literature; we exclude studies that compare formal and informal firms from the meta-analysis because those articles do not establish a (clear) one-way causal relationship between formalization and performance.

As illustrated in Figure 1, even the literature zooming in on firms that switch from informal to formal operations presents contrasting findings concerning performance effects for the newly formalized enterprises. A first qualitative appraisal of the literature reveals not only that the findings are heterogeneous (Figure 2) but also that the existing evidence is scarce. Moreover, a large variety of different performance indicators and study designs have been employed, making it likely that the results depend considerably on the chosen design and outcome indicators.

The literature analysed suggests that formalization is not always associated with an improvement of business performances. No impact of formalization on firm performance is a common finding (De Mel et al., 2013 and 2011; Ferragut and Gomez, 2012). For instance, De Mel et al. (2011) conducted an experiment in Sri Lanka and found that formalization only modestly improved the use of accounting books and did not improve any other performance indicator. Ferragut and Gomez (2012) show that income and working hours deteriorated for street vendors after registering and being forcefully relocated into eleven commercial centres in Quito, Ecuador. Boly (2015) presents more nuanced results, showing that formalization

partially improves performance: informal firms switching to formal status do perform better than those who stay informal, but still worse than formal firms. In contrast, other studies show that formalization increases the productivity of firms (Rand and Torm, 2012; Fajnzylber et al., 2009). Rand and Tom (2012) conducted a study in Vietnam and found that operating formally increases profits and investments and improves access to credit. Likewise, Fajnzylber et al. (2009) examine the effects of different policies on the performance of micro-firms in Mexico and find that formalization improves profits and performance.

A key factor explaining the heterogeneity of the reported effects is the large number of different outcome indicators studied. The benefits studied range from (i): access to credit or financial services to (ii) increasing profits, value added, investments, and revenues, to (iii) improving employment, and (iv) access to equipment, services and advertisement (Boly, 2015; Joshi et al., 2014; Rand and Torm, 2012; Mc Culloch et al., 2010). As the many different outcome indicators show, there is uncertainty about the most important (economic) gains from formalization (Boly, 2015; Joshi et al., 2014). For instance, Boly (2015) found that becoming formal does not improve access to credit, yet it leads to increased profits, value added, and revenue. Boly (2015) further identifies improved access to better equipment and a larger customer base, along with advertising and business association membership as advantages stemming from formalization. Fajnzylber et al. (2011) show that revenues and employment increased among registered enterprises and De Mel et al. (2011 and 2013) identify improved trust in government institutions as a positive outcome.

One important concern about the existing findings is that the reported evidence tends to differ relative to firm size. Only one study shows that formalization is beneficial for firms irrespective of their size (Boly, 2015). Yet, overall, it is unclear whether the smallest micro-firms, which represent the majority of informal firms, benefit from formalization.

We also observe a polarization of findings between experimental and non-experimental studies. Non-experimental studies tend to be more optimistic in establishing that formalization has a positive impact on firm performance (Rand and Torm, 2012; Fajnzylber et al., 2011). In turn, experimental studies suggest that firms remain informal because the costs of formalization outweigh the benefits and formalization does not significantly improve firm performance (De Mel et al., 2013; Jaramillo, 2013).

Another concern is the persistence of the perceived benefits over time. The majority of the studies does not collect evidence on long-term effects of formalization on firm performance. One of the few exceptions is the study by Boly (2015), which reports that benefits do not only appear in the short-term but also persist over time. In fact, the time needed for effects to materialize might be an important bottleneck of the existing literature since the benefits of formalization might take several years before they outweigh the initial costs of formalization. Alternatively, it is possible that the benefits of formalization are high in the short term but diminish later on (Fandl and Bustamante, 2016).

As this descriptive summary of the existing findings suggests, a more systematic approach is needed to identify whether there are any patterns to learn from in order to improve policy making. This is the aim of our meta-analysis.

5.3. Data and Empirical Approach

Methods, Protocols and Data Construction

We employ the existing MAER-Net guidelines elaborated by Havránek et al. (2020) to identify the relevant studies, code, construct and analyse the data. As a first stage, we employed the Google Scholar search engine to identify potentially relevant primary studies. We then supplemented the search strategy using two additional databases: Scopus and the World Bank Repository. We further conducted a manual search employing snowball sampling to search through the reference lists and bibliographies of the documents selected during the first stage. Our search involved the following combinations of keywords: 'Formalization firms', 'Impact formalization firms', 'Informality', 'Firm performance', 'Informal economy', 'Self-employment', 'Regulatory simplification', 'Small enterprises', 'Entry cost informal firms registration', and 'Benefit of formalization' (Appendix 1 presents the full list of queries).

An extensive literature was gathered; the Google Scholar database search resulted in 69,100 hits using the key words 'formality + firms performance'. Ensuing the initial search for studies, an inspection of titles, abstracts and keywords was conducted. In case of uncertainty, a review of the introduction and conclusion was also conducted. This procedure resulted in 47 prospective empirical primary studies.

In general, the identified studies employ the following model to estimate the impact of formality on the performance of firms:

$$Y_i = \alpha + \beta_1 D_i + \beta_2 t_i + \beta_3 X_i + \varepsilon_i \qquad (1)$$

where i represents the firm, Y is a measure of firm performance,[7] D a binary formality indicator that is equal to 1 for firms switching from informality to formality and zero otherwise, t denotes time in business, X represents a set of control variables and ε is the error term. This specification compares firms that left informality with those that continue operating informally. Based on this specification, we analysed empirical studies that report regression-based performance effect sizes, t-statistics or standard errors, and sample sizes. In addition, we imposed English language as criterion for selection since our search was conducted in English. The application of these criteria resulted in 1,274 observations from 20 empirical studies available in October 2019 (Appendix 2 provides the list of these studies). We excluded 11 studies from the analysis since they compare already formal enterprises with other formal or informal enterprises and thus belong to the first strand of the literature. Another 9 studies were excluded because they focused on the effects of interventions different from formalization such as (public sector) reforms or the effects of access to credit. Three papers were excluded as they did not employ regression analysis and another two studies because they constituted versions of documents that were already selected. One article was excluded as it was written in a language different from English and another study because it did not report information about the number of observations employed in the regression. Appendix 3 provides the PRISMA diagram and Appendix 4 a detailed list of excluded studies and the reason for exclusion. The procedure, from the search for primary studies to the extraction of the reported empirical estimates was independently conducted by two of the authors. This procedure resulted in a 3.5% disagreement rate for data extraction and coding. After cross-checking the disagreements, consensus was reached. Appendix 5 presents the studies included in the meta-analysis, including their publication status, study country, survey dates, the number of estimates, the mean effect size plus standard deviation and range. A summary of every primary study, including study design outcome indicators and findings is presented in Appendix 6.

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[7] The most frequently analyzed performance indicators are revenues and profits, employment, access to credit, tax payment and access to inputs.

Empirical Approach

Our empirical approach consists of three stages. In the first stage we compute the simple overall average effect across studies as arithmetic mean using the inverse variance weighting. For calculating the overall average effect, we employ the partial correlation coefficient (PCC) to make the reported estimates comparable across primary studies (for previous meta-analyses using PCC, see for instance, Doucouliagos, 2005; Havránek et al., 2016). We derive the PCC as:

$$PCC_{is} = \frac{t_{is}}{\sqrt{t_{is}^2 + df_{is}}} \tag{2}$$

where PCC_{is} denotes the partial correlation coefficient between formality and firm performance, measuring the association in terms of direction and strength of these two variables holding other variables constant. t_{is} represents the reported estimate's *t*-value and *df* are the associated degrees of freedom for each regression specification of the primary studies; *i* and *s* denote the reported regression specification and the primary study respectively.

In the second stage, we employ both graphical and statistical analyses to investigate the possibility of publication bias and the overall genuine empirical effect using the Funnel-Asymmetry Test (FAT) and Precision-Effect Test (PET). We first employ the funnel plot to graphically detect whether the reported estimates suffer from publication bias. A funnel plot is a scatter diagram of the estimated effects on the horizontal axis and their precision on the vertical axis.[8] However, this method of examining publication bias is based on visual inspection which is subjective and can be unconvincing. Therefore, we complement it with a formal statistical approach. We use the following meta-regression model (MRM) to investigate both publication bias and the overall average effect free from publication bias:

$$PCC_{is} = \beta_0 + \beta_1 SE_{pccis} + u_{is} \tag{3}$$

where PCC_{is} is the estimated performance effect for the ith regression specification from the sth study as presented in Eq. (2) and SE_{pccis} is its standard error; β_0 is the estimated overall genuine effect and β_1 an estimate of publication bias. This MRM incorporates that as sample

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[8] As measure of precision, usually the reciprocal of the standard error is taken (Demena, 2017; Stanley and Doucouliagos, 2012).

size increases and thus the quantity of available information increases, SE_{pccis} will approach zero (Stanley, 2005). In other words, with large sample sizes, PCC_{is} will approach β_0, the overall size of the effect independent of publication bias (Roberts and Stanley, 2005). In the absence of bias, the overall effect should vary randomly around β_0 irrespective of SE_{is}. Conversely, bias is detected if estimated effects are correlated with their standard errors.

Researchers use various econometric designs, specifications, and sample sizes resulting empirically in heteroscedasticity. To minimize this problem, Eq. (3) is estimated with a weighted least squares (WLS) approach. In this procedure, Eq. (3) is weighted by the inverse of the variance of the estimated PCC_{is} as in the following model:

$$t_{is} = \beta_1 + \beta_0(1/SE_{pccis}) + e_{is} \qquad (4)$$

where t_{is} is the *t*-value measuring the statistical significance of the PCC derived from PCC_{is}/SE_{pccis}. By testing the hypotheses that $\beta_1=0$ and $\beta_0=0$, the FAT and PET, respectively, investigate publication bias and the genuine effect of formality on firm performance.

In a third stage, we incorporate the sources of heterogeneity in the primary studies in the meta-analysis. We investigate the extent to which the reported effect size is influenced by the nature of the empirical design and other study characteristics. To account for heterogeneity, we simply expand Eq. (4) to set up a multivariate MRM:

$$t_{is} = \beta_1 + \beta_0(1/SE_{pccis}) + \alpha_k X_{kis}/SE_{pccis} + e_{is} \qquad (5)$$

where X denotes the matrix of the employed moderator variables, which are weighted by the inverse of the variance, α_k is the associated vector of coefficients and k refers to the specific moderator variable.

Another important concern in estimating Eqs. (4) and (5) is the issue of within-study dependence when multiple estimates are collected from the same study. Beyond within-study dependence, between-study dependence is also of concern when multiple studies are published by the same authors (and thus unlikely to be statistically independent). The substantial variations both within and between studies have already been graphically highlighted in Figure 2. To overcome this concern, we use, in addition to the basic OLS clustered standard errors (CDA) model, the mixed-effects multilevel (MEM) model. In the

CDA we make use of study-level clustered standard errors. Yet, since the number of primary studies is limited, we also employ the wild bootstrap clustering that was derived for clustering with a small number of clusters. In line with Demena and Afesorgbor (2020) and van Bergeijk et al. (2019), who recommend accounting for between-study dependence via the MEM model since this model accounts for both between-study and within-study dependence, we applied such technique. This is our preferred model.

Another empirical concern of estimating Eq. (5) is multicollinearity which can arise if a large number of moderators is employed. Following the MAER-Net guidelines and current trends in meta-analysis (Demena and Afesorgbor, 2020; Demena, 2017; Havránek et al., 2020), we use the general-to-specific (G-to-S) approach.[9] The procedure consists of including all the potential moderator variables in the general specification, and systematically removing the most insignificant variables until only significant variables remain. In doing so, we exclude 11 variables that are statistically insignificant at least at the 10% level. The joint test for the remaining 16 moderator variables rejects the null hypothesis of a zero joint effect, $F(16,1253)$ = 29.16 (p-value=0.000).

Data

The variables collected for the Meta-Regression Analysis (MRA) are presented in Table 1.

We observe that the studies analyze a variety of outcome indicators. The potential benefits deriving from formalizing the business reach from access to credit or financial services to profits, value added, investments, and revenues and also include employment, access to inputs, services and advertisement. The majority of the estimates (about 46%) report the benefit variable in the form of revenue, profit or value added. One in six outcomes analyses access to credit and roughly 9% of the outcomes feature inputs and raw materials. The oldest study was published in 2011, and the most recent one in 2019. The table classifies the characteristics of the primary studies into various categories, such as the type of intervention, estimation characteristics, the choice of formality indicators, and data characteristics. For example, concerning the empirical design, we observe a divergence of findings between non-experimental and experimental studies. Non-experimental studies tend to show that formalization has a positive impact on firm performance (Rand and Torm, 2012; Fajnzylber

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[9] In addition to the potential multicollinearity issue, the G-to-S approach reduces the potential loss of degrees of freedom.

et al., 2011; McKenzie and Sakho, 2010). Conversely, 6 studies (37% of the coefficients) employ a randomized experimental approach and tend to find smaller impacts along with larger confidence intervals (Benhassine et al., 2018; Demenet et al., 2016; De Mel et al., 2013). Furthermore, we observe that more than two-thirds of the estimates are from studies about micro-firms (firms with less than five employees) while other studies use data from any type of firm regardless of their size (small, medium or large).

[Table 1]

The studies also differ in terms of the proxies used to measure formality. Business registration is used in 55% of the estimates as a measure of firms switching from informal to formal status. About 43% of the estimates use obtaining a license as a measure of formality. The remaining studies use other formality indicators such as paying taxes, social security or other responsibilities. In terms of regional representation, approximately 45% of the estimates derive from Asian countries. Informal firms from Africa and Latin American countries are represented in 35% and 19% of the estimates, respectively.

Table 2 presents the overall performance impact of formalization. The simple average across studies results in a PCC of 0.024 with the 95% confidence interval ranging between 0.021 and 0.028 and thus indicating a positive and statistically significant impact of formality on firm performance that is modest in practical terms. Employing the inverse-variance weights we come to the same conclusion of a small positive impact (0.022). In Appendix 7, Table A1 we display the average effects by type of performance indicator using the same empirical approach as in Table 2. When comparing average PCCs by performance indicator we identify a positive effect for all outcome categories demonstrating that the finding is not determined by the type of outcome. As for the main specification, the magnitude of the effects is modest as it ranges from 0.015 to 0.039 depending on the indicator and on the computation method. While this average PCC provides a first summary of the impact of formalization on performance, it is only indicative. We need to account for publication bias and the various sources of heterogeneity to properly represent the overall genuine effect of formality.

[Table 2]

5.4. Findings and Discussion

Funnel plots

Publication bias arises when researchers, journal editors and referees prefer specific reported estimates (i.e., either mainly positive or negative statistically significant results) that are in line with specific theories or prior believes. In economics, several meta-analysts have already reported strong publication bias towards positive or negative effect sizes. For instance, Ashenfelter et al. (1999) identified a positive bias in the literature on return to education; Doucouliagos (2005) showed a positive publication bias in the literature on economic freedom and economic growth; Lazzaroni and Bergeijk (2014) identified a negative bias in relation to the macroeconomic impacts of natural disasters, Demena (2015) and Demena and Bergeijk (2017) found a positive bias in the literature on foreign direct investment and spillovers.

Figure 4 presents the funnel plot. The vertical axis displays the logarithm of the inverse of the standard error (precision) and the horizontal axis the estimated effect size (PCC). In the absence of publication bias, the plot should be symmetrical with less precise estimates or results, with larger standard errors estimated from small sample sizes being widely dispersed at the bottom of the graph. The most precise estimates, i.e. the studies with the smallest standard errors, should be closely distributed around the underlying effect from the top. Moreover, both negative and positive estimates irrespective of their statistical significance should be reported. In contrast, in the presence of publication bias, the funnel plot is asymmetrical, implying some estimates are discarded and others are represented more often. In our case, the reported estimates of the impact of formality are fairly symmetrically distributed around the vertical axis, although the negative estimates seem slightly under-represented in favour of positive ones.

[Figure 4]

Genuine Effects and Publication Bias

To investigate the extent of publication bias visually detected through the funnel plot on the overall genuine effect, we estimate Eq. (4). Table 3 presents the results of FAT and PET. The FAT does not detect the presence of a statistically significant publication bias although the coefficient is positive, ranging between 0.036 and 0.063 across the estimated specifications.

According to Doucouliagos and Stanley (2011), the size of publication bias found in this study is irrelevant (irrespective of the econometric method used).

[Table 3]

Alongside FAT, Table 3 reports PET. We consistently find a positive underlying genuine effect, which is statistically significant across models and at the 1% level for MEM, our preferred specification (see Section 3.2). Thus, after accounting for publication bias, the presence of a positive underlying empirical effect of formality on enterprise performance can be corroborated across empirical models.

[Table 4]

Yet, it might be the case that one or two dominant studies drive our results. To validate the results of the FAT-PET analysis, we assessed its robustness. Table 4 displays the results from a Jack-knife experiment performed to examine whether any of the studies included in the analysis explains the results. The findings from the Jack-knife experiment are consistent across subsamples and employed estimation methods, implying that they are representative for the sample as a whole.

The findings reported so far represent overall averages across empirical designs and study set-ups. However, there might be characteristics such as the study duration or the education of the entrepreneur that account for differences in the perceived advantages of formalization (Benjamin and Mbaye, 2012; De Vries, 2010; McKenzie and Sakho, 2010). In what follows, we conduct a multivariate MRA to assess the sources of heterogeneity along the moderator variables listed in Table 1.

Sources of Heterogeneity

Table 5 displays the findings of the multivariate MRA for different econometric specifications. Three findings stand out: First, publication bias does not arise after including other moderator variables, supporting the findings of the FAT-PET analysis. Second, the results do not vary across MRA specifications, indicating the robustness of the findings. Third, the genuine effects appear to be mainly influenced by the differences in the study set-up, empirical design and the bibliometric characteristics of the primary studies.

As identified in the previous section, the overall average effect of formality on firm performance is positive and significant. After accounting for several sources of heterogeneity, the overall genuine effect does not change sign and significance but increases in size. Specifically, we identified a genuine effect of 0.140 according to our conservative estimates (Table 5, Columns 1-4). According to the most optimistic specification, the MEM model that accounts for interaction terms, the effect is 0.212 (Table 5, Column 5). To put the effect in perspective, Doucouliagos (2011) classified the PCC as small when it ranges between 0.07 and 0.173, as medium between 0.173 and 0.327, and large if it is over 0.327. This implies that the consolidated primary evidence suggests that informal firms switching to formality gain modest benefits from registering. This finding lends support to the rational exit (Perry et al., 2007; Maloney, 2004) and exclusion model (De Soto, 2003 and 1990).

In addition, the multivariate MRA (Table 5, Column 4) identifies study heterogeneity as driver of the different findings. First, we assess the data characteristics of the primary studies: we find that the study duration positively and significantly affects the reported estimates, suggesting that the effects of formalization may take time to materialize (Fandl and Bustamante, 2016) and pointing to the need for longer term follow-up studies. The potential benefits from formalization increase by about 0.011 for every additional year of data added. Our results also indicate that newly formalized African firms are more likely to benefit from formalization as opposed to Asian firms, indicating that the approaches implemented so far might have greater potential in the African continent (0.042, p-value$\leq$0.01).

Next, we turn to features of the empirical specification and the implemented intervention. The econometric analysis performed in the primary study has a large and statistically significant influence on the reported estimates of firm performance, implying that the underlying empirical effect depends on moderator variables that potentially explain the heterogeneity across the estimates. Fixed effects models tend to report smaller coefficient estimates (-0.023, p-value$\leq$0.01). Similarly, estimates accounting for market-fixed effects tend to report smaller effects (-0.041, p-value$\leq$0.01), highlighting the role for tailored, market-specific approaches. In turn, controlling for year-fixed effects in the primary study tends to increase the identified effect (0.029, p-value$\leq$0.01); this further supports the argument that time is needed for effects to materialize.

[Table 5]

The primary studies are either implemented as randomized controlled trials or with a quasi-experimental or observational design. The quasi-experimental studies assess the impact of formalization on performance of firms using one or more of the following methods: (i) IV, (ii) matching, (iii) difference-in-differences (before and after an exogenous event), or (iv) regression discontinuity. The majority of these studies find that policy efforts to spur formality tend to positively influence firm performance (e.g. Fajnzylber et al., 2011). In contrast randomized experimental studies tend to suggest that the cost of formalization may outweigh the benefits in terms of firm performance. In line with the claim of RCTs to be free of bias and allowing for precise identification of effects, they tend to report smaller estimates (-0.032, p-value$\leq$0.01). Our results suggest that the dominance of positive estimates may reflect upward bias stemming from quasi-experimental and observational analyses, which require more assumptions to establish causality than the experimental studies (Bruhn and McKenzie, 2014).

Regarding the policy interventions under study, we establish the following relationship: policies that actively promote firm formalization tend to report smaller impact on the estimates of firm performance on average (-0.019, p-value$\leq$0.05) compared to self-induced formalization efforts (excluded category). Yet, whenever the active policy interventions are accompanied by information sharing in the form of meetings, trainings, and seminars the decision to formalize tends to be positively associated with firm performance (0.038, p-value$\leq$0.01). These findings have important implications for policymakers. First, active interventions to nudge firms into formalization by cutting the time and monetary costs seem most powerful when combined with information and training. Such a combined formalization strategy seems more successful than simply cutting the costs of formalization or increasing enforcement and forcing informal firms, including survival activities to formalize. A possible action could be to send (mobile) messages to informal micro-entrepreneurs about the possibilities offered by formalization to encourage upper tier informal firms to formalize. To the best of our knowledge, an approach that offers such tailored, firm-(size)-specific solutions has not been empirically tested in developing countries.

Next, we assess the role of the outcome variables in identifying impact. The dependent variable that proxies for firm performance in terms of revenue, profit or value added shows a positive and statistically significant formalization impact, although it is modest (0.007, p-value$\leq$0.01). One reason for the small impact on revenues/profits may be that informal

enterprises switch status when they are close to their optimal size and therefore display a lower growth rate after formalizing (Bruhn and McKenzie, 2014). Similarly, our results indicate that formalization improves, although again modestly, access to inputs (0.017, p-value≤0.1), implying that firms that switch formality status already have comparably easy access to inputs. Overall, the findings indicate that the existing literature has identified the most pertinent performance indicators; a focus on revenues/profits seems too narrow for understanding possible performance gains due to formalization, although other outcomes do not display particularly large effects.

Concerning the role of other confounding factors in the primary analysis, specifications controlling for the gender of the firm owner show small effects (-0.036, p-value≤0.01). Empirical specifications accounting for the education of the owner display systematically higher effects (0.045, p-value≤0.01). Lastly, our results suggest that the publication year of the study is negatively associated with the magnitude of the reported estimates; the more recent studies appear to report lower formalization benefits (-0.005, p-value≤0.01). Interestingly, study citations are positively correlated with the reported effects, suggesting that studies that identify positive effects get higher visibility and are more frequently cited (0.010, p-value≤0.01).

Overall, we conclude from the multivariate MRA that informal enterprises gain some moderate benefits from formalizing their business. While some reported estimates of the primary studies indicate very small PCCs (e.g. Rocha, 2018; De Mel et al., 2011), others report larger ones (e.g. McCaig and Nanowsky, 2019; Demenet, 2016). Taken together, our meta-analysis of the entire set of the empirical literature finds modest benefits from switching to formality, supporting those scholars that argue that formalization can improve firm performances (Williams and Kedir, 2016; Perry et al., 2007; Maloney 2004; De Soto, 2003 and 1990) but clouding expectations for large impacts.

Further analyses and robustness checks

To further corroborate the results, we provide several robustness checks and sensitivity analyses. Tables 5 (Columns 5 to 7), 6 and 7 display three additional tests. As can be observed in Table 5, Column 5, we follow Havránek and Iršová (2011) and assess the impact of formality at sample means of the interacted variables. As indicated in Table 1, only about 9% of the reported estimates come from interacted terms. In order to check whether evaluating

the impact of the formality indicator at sample means of the interacted variables results in different estimates, we added an explanatory variable accounting for estimates from interacted terms.

Table 7, Panel A, displays the results of the FAT-PET analysis after excluding estimates from interacted terms. Our main findings are supported by these specifications attributing a larger genuine effect in the MRA (Table 5, Column 5) but an identical effect in the basic FAT-PET analysis (compare Tables 2 and 7, Panel A). Next, we restrict our sample to active policy reforms that aim at spurring formalization of informal enterprises. Note that more than half the analysed estimates in this meta-analysis stem from the analysis of policy interventions or pilots in the form of randomized experiments. The simple and the weighted averages are lower compared to the average including all studies (Table 6). The results look more promising according to the FAT-PET, where a genuine effect of 0.024 according to the MEM model is suggested (Table 7, Panel B).

The results of the multivariate MRA presented in Column 6 of Table 5 indicate a large positive and highly statistically significant impact of policy-induced formalization approaches (1.643, p p-value≤0.01). This finding gives strong support for policy efforts aimed at promoting business registration since it attributes large performance gains to operating formally. Why, then, do we identify such small overall effects? To partly answer this question, we also investigate whether self-induced formalization is associated with larger benefits. As shown in Table 6, the overall average effect of policy-induced formalization is considerably lower (0.014 or 0.016 depending on the specification) compared to the average effect of self-induced formalization (0.036 or 0.037 depending on the specification). The PET-FAT analysis presented in Table 7, Panel C, also attributes a larger genuine effect to self-induced formalization (0.029 or 0.043 depending on the specification). Column 7 of Table 5 displays the results of the MRA for the sub-sample of enterprises for which formalization was self-induced. The heterogeneity-adjusted findings indicate that self-induced formalization is associated with lower benefits compared to policy-induced formalization (0.246, p-value≤0.05). These findings challenge supporters of the dual economy model that argue in favor of a laissez-faire policy approach motivated by the argument that informal firms are too small to benefit from formalization (La Porta and Shleifer, 2014 and 2008). The comparably larger effect of policy-induced formalization on firm performance supports the ongoing efforts of governments and policy makers to motivate

informal enterprises to operate formally. It clearly shows that simply observing the scene and only providing an overall conducive business environment results in lower gains from operating formally compared to targeted interventions.

[Table 6]

[Table 7]

Next, we explore the findings reported in Table 5 further by estimating the underlying genuine effect from the multivariate MRA conditional on the identified sources of heterogeneity. Results are presented in Table 8. We follow the best practice approach as suggested by Demena and Bergeijk (2017) and Stanley and Doucouliagos (2012). They argue that the underlying genuine overall effect is not related to a single PET, but to a set of selected moderator variables used to capture the heterogeneity. We define the best practice conditional on the moderator variables most frequently used in the primary studies analysed. Specifically, we include coefficient estimates associated with (i) the number of years of data used in the study, (ii) the number of observations from which the primary estimates derive, (iii) the outcome indicator being revenues, (iv) the design being an RCT, (v) market fixed effects, and (vi) the gender of the owner. We also included the two controls for the quality of the studies. These indicators are publication year of the study and the number of citations received in Google Scholar relative to the age of the study. The analysis suggests that the predicted genuine effect conditional on the identified heterogeneity is 0.099, being statistically significant at the 5% level. This implies that the corrected correlation coefficient derived from the best practice approach is considerably larger than the simple average and significant after controlling for the observable sources of heterogeneity. Nonetheless, following Doucouliagos (2011), the genuine effect corresponds to a small sized PCC. Thus, the existing evidence indicates that overall formalization is beneficial for enterprises that opt to formalize, although the effects are not large. We repeat this exercise and estimate the underlying genuine effect for the sub-sample of coefficients derived from formalization that was policy-induced. The exclusion model argues that formalization may unleash the hidden potential of informal firms (De Soto, 1990). In line with this argument, our results suggest that these policy efforts to spur formality are positively associated with firm performance: the genuine effect is large, namely 1.128, and highly statistically significant (p-value≤0.01). Next, we restrict the analysis to the sub-sample of estimates derived from self-induced formalization and find a positive genuine effect of 0.253 that is statistically significant at the

1% level. This finding further corroborates that policy-induced formalization is associated with the highest benefits, once study heterogeneity is taken into account.

[Table 8]

Finally, to develop a better understanding of the type of performance indicator that shows the most impact, we carry out the analysis by type of indicator knowing that for some performance indicators the sample of primary estimates is rather small. The results are presented in Appendix 7, Tables A1 and A2. All average effects are positive, suggesting that our main findings are not driven by one type of performance indicator (Table A1); the effects are largest for access to inputs and second largest for revenues. Table A2 shows the FAT-PET results. The identified genuine effects and publication biases are consistent across the different specifications that we employ. Across outcome indicators, the genuine effects range from an average PCC of 0.010 to 0.026. Although small, the genuine effects are statistically significant for all indicators except for access to credit. Similarly to the simple average, the effect is again largest for access to inputs and revenues/profits (the effects range between 0.024 and 0.026). Concerning the lack of impact on access to credit, the existing literature suggests that this is likely. According to Joshi et al. (2014), formalization benefits firms through various transmission channels, including access to credit and financial services, but also in the form of opportunities to engage with large firms and the government, better access to equipment, services, training, advertisement and support programs. In turn, Bruhn and McKenzie (2014) argue that most newly formalized firms are unlikely to receive credit or government contracting, as their legal status is not the main barrier. For instance, many credit institutions ask borrowers to provide information about their accountability (via books, financial statement or earlier banking operations). Often banks also require reliable documents about the location of the firm, land ownership, and assets that can be used as collateral. Furthermore, access to credit might depend on characteristics such as ability of the entrepreneur, gender and age (Kira and He, 2012; Fatoki and Odeyemi, 2010; Straub, 2005). Therefore, it is surprising to find an insignificant average effect for access to credit. Concerning publication bias, the FAT is positive for access to credit and access to inputs, whereas revenues and other indicators display a negative publication bias. Although the sign of the FAT changes depending on the outcome indicator, the detected publication bias is not statistically significant for any of the considered outcomes. Thus, overall, the sub-sample analyses corroborate the results presented in the main FAT-PET analysis.

5.5. Conclusion

This study conducts a meta-analysis of the empirical literature on the effect of formalization on firm performance. Theoretically, formalization is considered to encourage firms to opt out of informality by increasing revenues, profits and investments, as well as improving access to credit, services, and advertisement (Joshi et al., 2014; De Soto, 1990). The existing empirical literature on the benefits of formalization reports heterogeneous findings (Figures 1, 2, and 3). Based on the review primary studies, only slightly more than one-third of the reported estimates are positive and statistically significant. Another 36% of the findings are positive but statistically insignificant. In brief, to date, the reported empirical estimates are not conclusive.

We asked two main questions: First, is the average impact of formalization on firm performance large enough to make opting out of informality attractive? Second, what drives the heterogeneity of the reported findings across primary studies?

Our results suggest that, on average, formalization has a positive impact on firm performance, implying that enterprises benefit from formalization. Yet, the overall impact found is small, suggesting that the average firm does not necessarily consider it attractive to convert operations from informal to formal. Concerning publication bias, our graphical results indicate some slight tendency to over-report positive estimates but this is not substantiated in the refined empirical analyses. The heterogeneity of the reported findings motivated a multivariate MRA beyond the FAT-PET bivariate analysis. The resulting overall average effect of formalization on firm performance is modest but highly statistically significant, implying that formalization has a positive impact on firm performance but there are no large windfall benefits to be expected. The results support those scholars who argue that formalization is associated with improvements in business performance (Maloney, 2004; De Soto, 2003 and 1990).

In addition, the MRA shows that aspects of the empirical design have a strong influence on the reported estimates of firm performance. In particular, policy interventions that actively share information about the program (in the form of visits, trainings, seminars and workshops), the employed measure of firm performance and formality, the empirical approach of the primary study and the study duration explain why the reported estimates from the primary studies differ so widely. In our robustness checks, we show that the findings

are consistent across outcome indicators. We further identify that policy induced formalization is associated with higher business performance compared to self-induced formalization.

In what concerns the theoretical debate, we show that, at first glance, the results are in line with the exclusion model that postulates that informal enterprises benefit from formalization (De Soto, 2003 and 1990). Yet, the limited overall impact suggests that firms take their decision based on a cost-benefit analysis as outlined by the rational exit model (Perry et al., 2007; Maloney, 2004).

What are the insights for policymaking? To develop a more comprehensive understanding of formalization policies, it is not sufficient to study the reduction of direct formalization costs but also the expected benefits, since the findings suggest that firms carry out a careful cost-benefit analysis (Bruhn and McKenzie, 2014). Policy efforts such as one-stop shops that lower the costs of registration or simplify the procedures do not automatically result in improved firm performance of the newly formalized firms, although on average they tend to be more effective than self-induced formalization once we account for existing study heterogeneities. Policymakers should embrace a more nuanced approach for promoting formalization rather than focusing exclusively on reducing the time and monetary costs of registration; benefits of formalization should be increased alongside cost reductions. This could be achieved through facilitation services and training to develop entrepreneurial skills. Furthermore, as highlighted by our heterogeneity analysis, the dissemination of information and outreach activities to engage informal entrepreneurs are important key. Undoubtedly, simplistic one-size-fits-all approaches to formalization do not do justice to the heterogeneity of contexts and types of most informal activities. Therefore, it is not surprising that the existing formalization efforts have not been overly successful. For success to materialize for both governments and entrepreneurs, it seems that policymakers have to take a more thoroughly crafted, context-specific approach to promoting formalization. Since firms that formalize after policy interventions report higher benefits compared to self-induced formalization, policies aiming to increase regulation are supported by the existing findings. Yet, we need further experimenting and fine-tuning to identify more precisely the rules of the game that will make it worth the candle.

Tables and Figures

Table 1. Definition and descriptive statistics of collected variables

Moderator Variables	Definition	Mean	Std. Dev.
	Outcome characteristics		
PCC	Partial correlation coefficient	0.024	0.060
PCCSE	Standard error of PCC	0.022	0.017
NO. EXP	Number of explanatory variables included	13.79	5.762
	Dependent variable choice		
Revenue	=1 if dependent variable is measured as revenue/profit/value added	0.460	0.499
Credit	=1 if dependent variable is measured as access to credit	0.162	0.368
Input	=1 if dependent variable is measured as access to inputs/raw material (other performance indicators as excluded category)	0.088	0.283
	Data characteristics		
No. Years	The number of years of data used	4.495	2.225
No. Obs.	Logarithm of the number of observations	8.182	1.403
Micro firm	=1 if data come from micro firms	0.726	0.446
Latin America	=1 if data come from Latin America (data from Asia as excluded category)	0.188	0.391
Africa	=1 if data come from Africa	0.356	0.479
	Estimation characteristics		
OLS	=1 if estimation method is OLS (random-effects, GMM, WLS, 2SLS and others as a base)	0.378	0.485
Fixed effects	=1 if estimation method is fixed effects	0.236	0.425
Year FE	=1 if year fixed effects are included	0.350	0.477
Sector FE	=1 if sector fixed effects are included	0.380	0.486
Market FE	=1 if market or location fixed effects are included	0.498	0.500
Randomized experiment	=1 if results stem from a randomized experiment	0.367	0.482
Log-linear	=1 if the coefficient is from a log linear specification (linear specifications form the excluded category)	0.485	0.450
	Policy intervention		
Policy	=1 if formalization is induced by policy interventions	0.555	0.497
Information	=1 if information about the intervention is actively shared with the informal firms in the form of visits, meetings, trainings and seminars	0.214	0.410
	Specification characteristics		
Registration	=1 if formality is measured as registration	0.550	0.498
License	=1 if formality is measured as license (other formality indicators as excluded category)	0.435	0.496
Gender	=1 if gender of the business owner is included	0.694	0.461
Age	=1 if age of the business owner is included	0.368	0.482
Education	=1 if education of the business owner is included	0.536	0.499
Interaction terms	=1 if coefficient results from interaction variables	0.086	0.281
	Publication characteristics		
Publication Year	Publication year of the study (base, 2011)	7.753	2.550
Published	=1 if published in a peer-reviewed journal	0.457	0.498
Study citations	Logarithm of citations in Google Scholar per age of the study, as of January 2019	1.504	1.045
Journal impact	Recursive journal impact factor from RePEc	0.267	0.489

Table 2. Estimates of the average impact of formality on performance (PCC) – all studies

Method	Effect size	S.E	95% confidence interval	
Simple average effect[a]	0.024	0.002	0.021	0.028
Weighted average[b]	0.022	0.001	0.019	0.024

Note: [a] arithmetic mean of the PCC. [b] inverse variance as weight.

Table 3. Bivariate MRA for FAT-PET: Publication bias and true effect – all studies

	All studies					
	(1)		(2)		(3)	
Variables	CDA		Wild bootstrapped		MEM	
	Coefficient	t-value	Coefficient	p-value	Coefficient	t-value
Bias (FAT)	0.036	0.12	0.036	0.10	0.063	0.14
Genuine effect (PET)	0.021***	8.45	0.021*	0.06	0.020***	3.79
Observations	1,274		1,274		1,274	
Studies	20		20		20	

Note: ***/**/* indicates statistical significance at the 1/5/10% level, respectively. The test for between-study heterogeneity (Q-test) is 15973.61*** on 1,270 degrees of freedom with a p-value of less than 0.001 and the I^2 statistic (variation in reported estimates attributable to heterogeneity) is 92.0%. All estimates use the inverse variance as weights. Reported *t*-values are from cluster-robust standard errors. Column (1): CDA – clustered data analysis with study level clustered standard errors; Column (2): CDA analysis with *p*-values using a non-standard cluster adjustment, the wild bootstrap approach; robustness test for column (1). Column (3): Mixed-effects multilevel (MEM) estimates derived from restricted maximum likelihood estimation.

Table 4. Bivariate meta-regression analysis for the FAT-PET: Jack-knife experiment

Dropped individual studies	Dropped observations	CDA		MEM		Total observations
		FAT coefficient	PET coefficient	FAT coefficient	PET coefficient	
Alcázar and Jaramillo (2016)	30	0.031	0.021***	0.048	0.020***	1,244
Benhassine et al. (2018)	108	0.226	0.021***	0.131	0.021***	1,166
Berkel (2018)	42	-0.040	0.022***	-0.037	0.021***	1,232
Bich and La (2018)	1	0.021	0.021***	0.004	0.020***	1,268
Boly (2015)	96	-0.086	0.021***	0.107	0.018***	1,178
Boly (2018)	64	-0.080	0.021***	-0.047	0.020***	1,21
Campos et al. (2015)	144	0.032	0.021***	0.201	0.018***	1,13
Campos et al. (2018)	126	0.058	0.022***	0.090	0.020***	1,148
Campos et al. (2019)	33	0.050	0.022***	0.078	0.022***	1,241
de Mel et al. (2011)	29	0.024	0.021***	0.045	0.020***	1,245
de Mel et al. (2013)	27	0.042	0.021***	0.077	0.020***	1,247
Demenet (2016)	165	-0.056	0.022***	0.019	0.021***	1,109
Fajnzylber et al. (2011)	156	0.542	0.011	0.184	0.018***	1,118
Gabrieli et al. (2012)	36	0.091	0.021***	0.140	0.021***	1,238
McCaig and Nanowsky (2018)	130	0.064	0.021***	0.015	0.021***	1,144
McCaig and Nanowsky (2019)	42	0.062	0.021***	0.069	0.021***	1,232
Rand (2017)	8	0.028	0.021***	0.033	0.020***	1,266
Rand and Torm (2012)	14	0.010	0.021***	-0.020	0.021***	1,26
Rocha et al. (2014)	12	0.049	0.021***	0.098	0.020***	1,262
Rocha et al. (2018)	6	0.043	0.021***	0.088	0.021***	1,268

Note: ***/**/* indicates statistical significance at the 1/5/10% level, respectively. All estimates use the inverse variance as weights and standard errors are clustered at the study level or by authors.

Table 5. Multivariate meta-regression analysis assessing heterogeneity across studies

Moderator variables	(1) Specific	(2) CDA	(3) Wild bootstrap ped	(4) MEM	(5) MEM	(6) MEM	(7) MEM
Genuine effect	0.140**	0.140**	0.140**	0.140**	0.212***	1.643***	0.246**
	(0.052)	(0.059)	(0.048)	(0.051)	(0.053)	(0.310)	(0.099)
Bias coefficient	-0.257	-0.257	-0.257	-0.257	-0.775	-18.729***	-0.989
	(0.564)	(0.678)	(0.712)	(0.560)	(0.569)	(3.659)	(0.842)
Data							
No. Years	0.011***	0.011***	0.011***	0.011***	0.011***	0.190***	0.008***
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.0037)	(0.002)
No. obs.	-0.015**	-0.015**	-0.015**	-0.015**	-0.021***	-0.170***	-0.028***
	(0.005)	(0.006)	(0.064)	(0.005)	(0.006)	(0.033)	(0.009)
Africa	0.042***	0.042***	0.042***	0.042***	0.048***	0.105*	0.061**
	(0.014)	(0.010)	(0.004)	(0.014)	(0.014)	(0.041)	(0.026)
Estimation and Interventions							
OLS	-0.010*	-0.010	-0.009	-0.010*	-0.009	0.141**	-0.002
	(0.005)	(0.007)	(0.364)	(0.005)	(0.005)	(0.044)	(0.005)
Fixed effects	-0.023***	-0.023***	-0.023***	-0.023***	-0.023***	-1.118*	-0.004
	(0.007)	(0.004)	(0.002)	(0.007)	(0.007)	(0.256)	(0.007)
Year FE	0.028***	0.028***	0.028***	0.029***	0.029***	-0.076**	-0.001
	(0.005)	(0.004)	(0.000)	(0.005)	(0.005)	(0.030)	(0.009)
Market	-0.041***	-0.041***	-0.041**	-0.041***	-0.044***	0.046	-0.005
	(0.006)	(0.009)	(0.032)	(0.006)	(0.006)	(0.038)	(0.010)
Randomized experiment	-0.032*	-0.032*	-0.031*	-0.032**	-0.039**	-0.618***	
	(0.016)	(0.015)	(0.100)	(0.016)	(0.015)	(0.131)	
Policy	-0.019**	-0.019***	-0.019***	-0.019**	-0.016*		
	(0.009)	(0.007)	(0.002)	(0.009)	(0.009)		
Information	0.038***	0.038***	0.038***	0.038***	0.038***	0.038***	
	(0.004)	(0.008)	(0.000)	(0.004)	(0.004)	(0.005)	
Performance indicator and Specification							
Revenue	0.007***	0.007*	0.007	0.007***	0.008***	0.006**	0.029***
	(0.002)	(0.004)	(0.44)	(0.002)	(0.002)	(0.002)	(0.006)
Inputs	0.017**	0.017**	0.017*	0.017*	0.016*	-0.001	0.027***
	(0.009)	(0.006)	(0.100)	(0.009)	(0.009)	(0.070)	(0.008)
Gender	-0.036***	-0.036***	-0.036***	-0.036***	-0.036***	-0.036***	-0.003
	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.006)
Education	0.045***	0.045***	0.045**	0.045***	0.044***	0.000	0.000
	(0.008)	(0.006)	(0.012)	(0.008)	(0.007)	(0.000)	(0.000)
Interaction terms					-0.021***		
					(0.005)		
Publication							
Publication year	-0.005***	-0.005***	-0.005***	-0.005***	-0.006***	-0.020**	-0.006**
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.007)	(0.002)
Study citations	0.010***	0.010***	0.010***	0.010***	0.008***	-0.007	0.012**
	(0.002)	(0.001)	(0.000)	(0.002)	(0.002)	(0.006)	(0.005)
Observations	1,271	1,271	1,271	1,271	1,271	704	567
Studies	20	20	20	20	20	11	9

Note: The dependent variable is the partial correlation coefficient of the impact of formalization on firm performance. Figures in parentheses are standard errors, except for Column (3), where *p*-values are presented. ***/**/* indicates statistical significance at the 1/5/10% level, respectively. Column (1) reports estimates using the general-to-specific (G-to-S) modelling approach including all potential moderator variables in the general specification without adjusting standard errors. Column (2) presents estimates from a clustered data analysis (CDA) with study level clustered standard errors; Column (3) shows the estimates using a non-standard cluster adjustment, the wild bootstrap approach. Columns (4)-(7) show the results from a mixed-effects multilevel (MEM) estimation employing restricted maximum likelihood. All columns use inverse

variance weights. The total number of observations is 1,271 instead of 1,274 since three of the inverses of the variance have zero values.

Table 6. Estimates of the average impact of formality on performance (PCC) – policy induced versus self-induced

Method	Effect size	S.E	95% confidence interval	
Policy induced				
Simple average effect	0.014	0.002	0.010	0.018
Weighted average	0.016	0.002	0.013	0.019
No policy intervention				
Simple average effect	0.037	0.003	0.031	0.042
Weighted average	0.036	0.002	0.032	0.041

Note: See Table 2.

Table 7. Bivariate MRA for FAT-PET: Publication bias and true effect – further analyses

	Panel A - Excluding interaction terms					
	(1)		(2)		(3)	
Variables	CDA		Wild bootstrapped		MEM	
	Coefficient	*t*-value	Coefficient	*p*-value	Coefficient	*t*-value
Bias (FAT)	0.149	0.49	0.184	0.110	0.219	0.53
Genuine effect (PET)	0.021***	11.89	0.021***	0.006	0.021***	4.10
Observations	1,164		1,164		1,164	
Studies	20		20		20	
	Panel B - Policy induced					
Variables	CDA		Wild bootstrapped		MEM	
	Coefficient	*t*-value	Coefficient	*p*-value	Coefficient	*t*-value
Bias (FAT)	-0.998	-1.58	-0.998**	0.002	-0.891	-1.51
Genuine effect (PET)	0.026***	6.14	0.026	0.260	0.024***	3.91
Observations	707		707		707	
Studies	11		11		11	
	Panel C - No policy intervention					
Variables	CDA		Wild bootstrapped		MEM	
	Coefficient	*t*-value	Coefficient	*p*-value	Coefficient	*t*-value
Bias (FAT)	-0.303	-1.08	-0.303**	0.002	0.528	1.35
Genuine effect (PET)	0.043***	9.46	0.043**	0.001	0.029***	4.62
Observations	567		567		567	
Studies	9		9		9	

Note: See Table 3

Table 8. Meta-effect based on best practices

MEM method	Effect size	S.E	95% confidence interval	
Full sample meta-effect	0.099**	0.048	0.004	0.194
Policy induced meta-effect	1.128***	0.222	0.691	1. 564
No policy intervention meta-effect	0.253***	0.087	0.082	0.425

***/**/* indicates statistical significance at the 1/5/10% level, respectively.

Figure 1. Impact of formalization on firm performance compiled from 1,274 estimates (2011–2019)

		461	447
	289		
77			
6%	23%	36%	35%
Negative and Statistically Significant	Negative and Statistically Insignificant	Positive and Statistically Insignificant	Positive and Statistically Significant
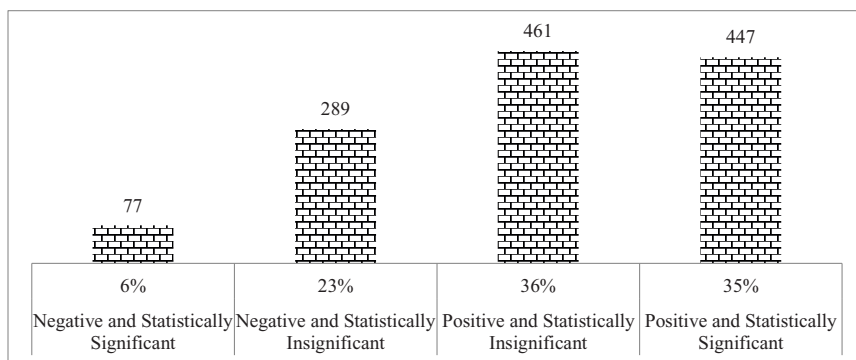
Source: Authors' compilation from 1,274 estimates of firm performance parameters.

Figure 2. Estimated formalization-firm performance effects vary both within and across studies
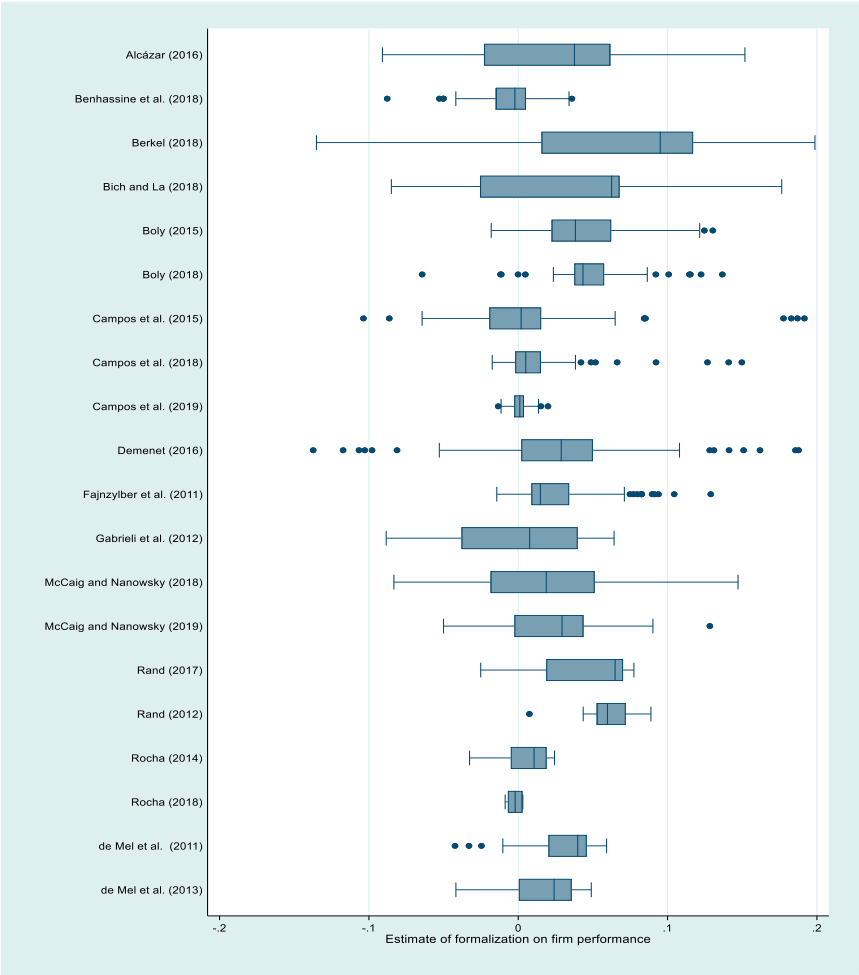
Figure 3. The reported formalization-firm performance effects vary widely, but the average is constant over time
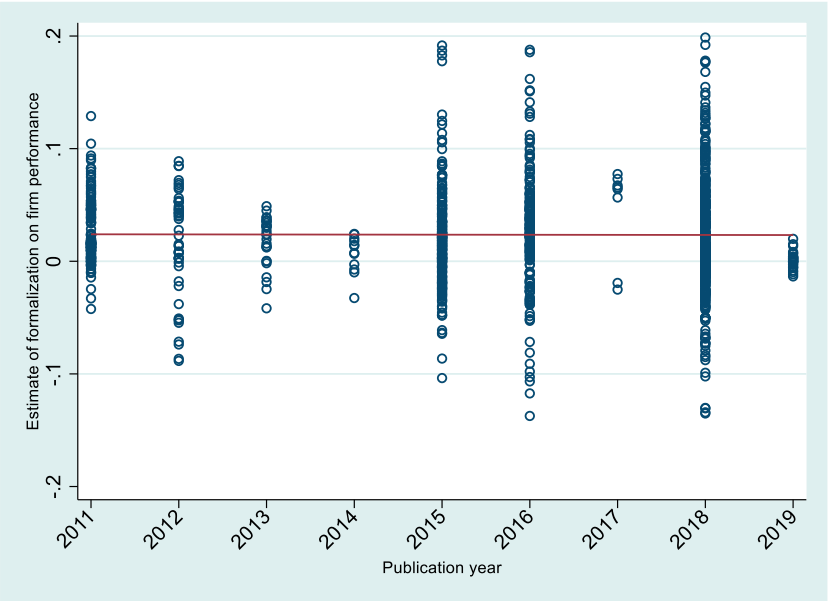
Figure 4. Funnel plot of the impact of formality on firm performance – all studies (N=1,274)
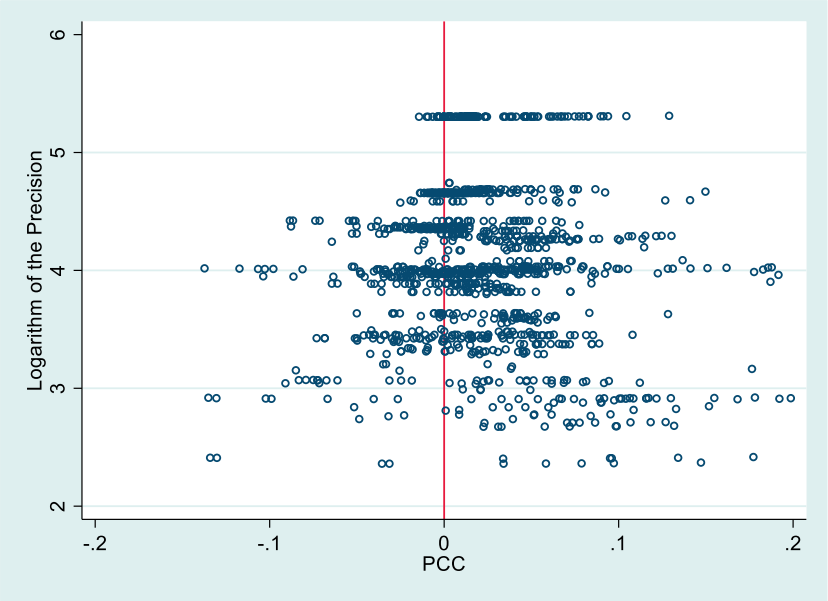
Note: For an improved visualization of the funnel plot, the logarithm of the reciprocal of the SE of the PCC is represented on the vertical axis.

Appendix 1: List of keywords employed in the review process

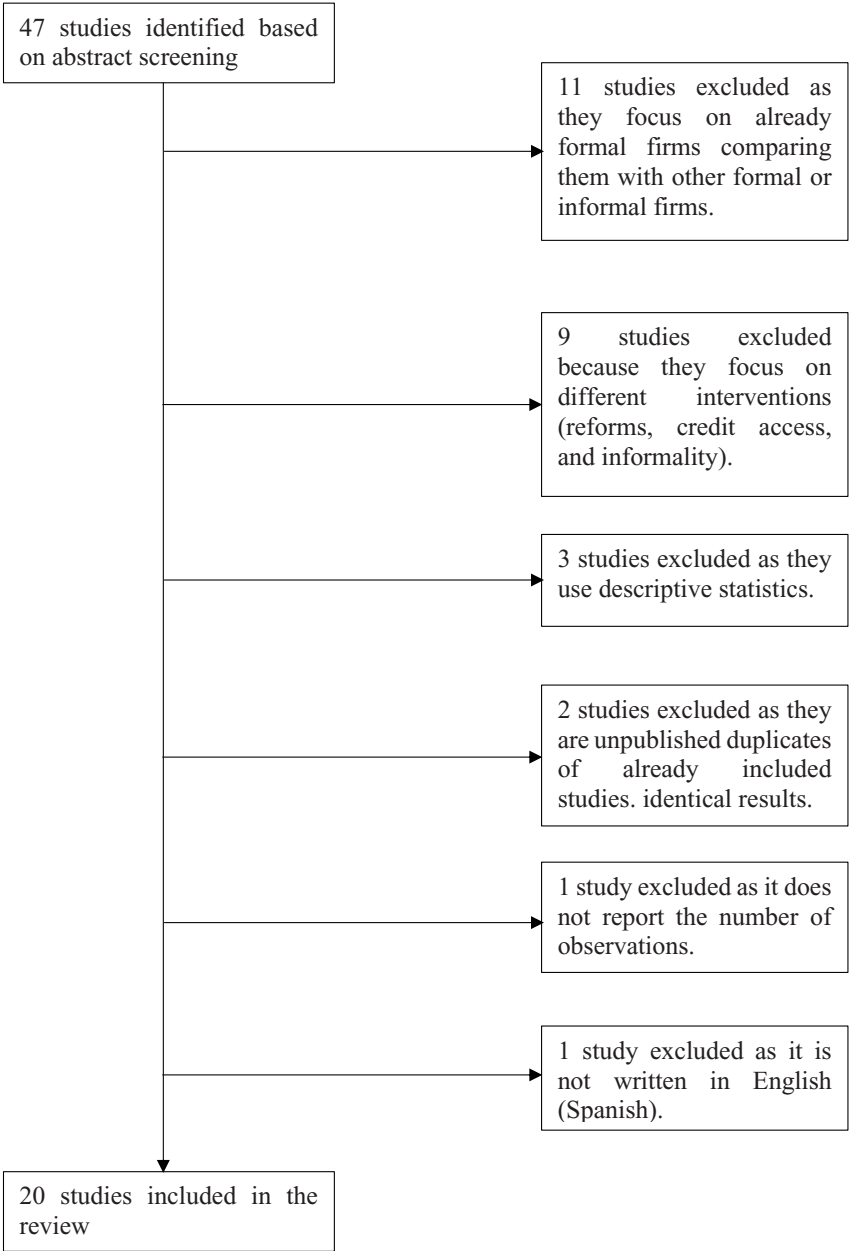| Search Database	Formality indicator	Outcome	Query
Google Scholar, Scopus, World Bank Knowledge Repository	Unspecified	Unspecified	Formalization firms
			Impact formalization firms
			informality
			firm performance
			Informal economy
			self-employment
			regulatory simplification
			small enterprises,
			entry cost informal firms registration
			benefit of formalization
	Formalization Registration License	Revenues	"Firm formalization" AND "revenues"
			"Firm registration" AND "revenues"
			"Firm license" AND "revenues"
		Profits	"Firm formalization" AND "profit"
			"Firm registration" AND "profit"
			"Firm license" AND "profit"
		Credit	"Firm formalization" AND "credit"
			"Firm registration" AND "access credit"
			"Firm license" AND "credit"
		Input	"Firm formalization" AND "input"
			"Firm registration" AND "input"
			"Firm license" AND "input"
		Taxes	"Firms formalization" AND "taxes"
			"Firm registration" AND "taxes"
			"Firm license" AND "taxes"

Source: Authors' elaboration.

Appendix 2: Studies included in the meta-analysis

- Alcázar, L., and Jaramillo, M. (2016) The Impact of Formality on Microenterprise Performance: A Case Study in Downtown Lima. GRADE Group for the Analysis of Development. Lima, Peru.

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

- Berkel, H. (2018) The costs and benefits of formalization for firms: A mixed-methods study on Mozambique. Working Paper N° 159. World Institute for Development Economic Research (UNU-WIDER).

- Bich, T. T., and La, H. A. (2018) Why do household businesses in Viet Nam stay informal? WIDER Working Paper N° 2018/64.

- Boly, A. (2015) *On the benefits of formalization: Panel evidence from Vietnam*. Working Paper N° 2015/038. UNU WIDER. Helsinki.

- Boly, A. (2018) On the short-and medium-term effects of formalisation: Panel evidence from Vietnam. *Journal of Development Studies*, 54(4), 641-656.

- Campos, F., Goldstein, M., and McKenzie, D. (2015) Short-term impacts of formalization assistance and a bank information session on business registration and access to finance in Malawi.

- Campos, F., Goldstein, M., and McKenzie, D. (2018) *How Should the Government Bring Small Firms into the Formal System? Experimental Evidence from Malawi.* Policy Research Working Paper N° 8601. World Bank Group. Washington DC.

- Campos, F, Goldstein, M and McKenzie, D, (2019). *The impacts of formal registration of businesses in Malawi, 3ie Grantee Final Report*. New Delhi: International Initiative for Impact Evaluation (3ie).

- De Mel, S., McKenzie, D., and Woodruff, C. (2011) What is the Cost of Formality? Experimentally estimating the demand for formalization. Mimeo.

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

- Demenet, A., Razafindrakoto, M., and Roubaud, F. (2016) Do informal businesses gain from registration and how? Panel data evidence from Vietnam. *World Development*, 84, 326-341.

- Fajnzylber, P., Maloney, W.F., and Montes-Rojas, G.V. (2011) Does Formality Improve Micro-Firm Performance? Evidence from the Brazilian SIMPLES Program. *Journal of Development Economics,* 94(2), 262-276.

- Gabrieli, T. and Montes-Rojas, G. A. F. (2011) Who benefits from reducing the cost of formality? Quantile regression discontinuity analysis. In: Informal Employment in Emerging and Transition Economies (pp. 101-133). Emerald Group Publishing Limited

- McCaig, B., and Nanowski, J. (2018) Business Formalization in Vietnam. Working Paper.

- McCaig B., and Nanowski J. (2019) Business Formalisation in Vietnam. *Journal of Development Studies*, 55(5), 805-821.

- Rand, J. (2017) Comparing estimated and self-reported mark-ups for formal and informal firms in an emerging market context. WIDER Working Paper N° 2017/160.

- Rand, J., and Torm, N. (2012) The Benefits of Formalization: Evidence from Vietnamese Manufacturing SMEs. *World Development,* 40(5), 983-998.

- Rocha, R., Ulyssea, G., and Rachter, L. (2014) Do Entry Regulation and Taxes Hinder Firm Creation and Formalization.Evidence from Brazil. Working Paper.

- Rocha, R., Ulyssea, G., and Rachter, L. (2018) Do lower taxes reduce informality? Evidence from Brazil. *Journal of Development Economics*, 134, 28-49.

Appendix 3: PRISMA diagram of the selection stages

47 studies identified based on abstract screening	→	11 studies excluded as they focus on already formal firms comparing them with other formal or informal firms.
	→	9 studies excluded because they focus on different interventions (reforms, credit access, and informality).
	→	3 studies excluded as they use descriptive statistics.
	→	2 studies excluded as they are unpublished duplicates of already included studies. identical results.
	→	1 study excluded as it does not report the number of observations.
	→	1 study excluded as it is not written in English (Spanish).
20 studies included in the review		

Source: Authors' elaboration.

Appendix 4: List of excluded studies

No.	Study	Reasons for exclusion
1	Almeida, R., & Carneiro, P. (2012). Enforcement of labor regulation and informality. *American Economic Journal: Applied Economics*, *4*(3), 64-89.	Other comparison (comparing formal and informal)
2	Aparicio, G., 2014. *Does Formality Improve Firm Performance? Evidence From a quasi-Experiment in Mexico*. Boston University Working Paper. Boston, MA: Boston University.	Missing Information (observations)
3	Benhassine, N., McKenzie, D., Pouliquen, V., & Santini, M. (2016). Can enhancing the benefits of formalization induce informal firms to become formal? Experimental evidence from Benin. The World Bank.	Double version
4	Benjamin, N. C., & Mbaye, A. A. (2012). The Informal Sector, Productivity, and Enforcement in W est A frica: A Firm-level Analysis. *Review of Development Economics*, *16*(4), 664-680.	Other comparison (comparing formal and informal)
5	Brockmeyer, A., Kettle, S., & Smith, S. D. (2016). *Casting the Tax Net Wider: Experimental Evidence from Costa Rica*. World Bank Policy Research Working Paper, (7850).	Other population (already formal) and comparison (before and after tax reporting)
6	Calderon, G., Cunha, J. M., & De Giorgi, G. (2013). *Business literacy and development: Evidence from a randomized controlled trial in rural Mexico*. National Bureau of economic research (NBER) Working Paper No. 19740.	Other intervention (effects of business training) and outcome (including formalization)
7	Cardenas, M. and Rozo, S. (2007). La informalidad empresarial y sus consecuencias:¿ Son los CAE una solución?. Fedesarrollo, Bogotà, Colombia.	Other language (Spanish) and other comparison (comparing already formal and informal)
8	Caro, L., Galindo, A., & Meléndez, M. (2012). *Credit, labor informality and firm performance in Colombia* (No. IDB-WP-325). IDB Working Paper Series.	Other comparison (comparing formal and informal)
9	Cotler, P. (2018). Firms Informality and Networks in Mexico: A Cross Section Analysis. *Economia*, *41*(82), 61-82.	Other intervention (impact of credit on labor tax payment) and other population (already formal firms)
10	De Andrade, G. H., Bruhn, M., & McKenzie, D. (2013). A helping hand or the long arm of the law? Experimental evidence on what governments can do to formalize firms. The World Bank.	Other intervention (effects of inspections on trust and views of government)
11	Fajnzylber, P., Maloney, W. F., & Rojas, G. V. M. (2006). Releasing constraints to growth or pushing on a string? the impact of credit, training, business associations, and taxes on the performance of Mexican micro-firms. The World Bank.	Other population (both formal and informal firms; formality captured by tax payment)
12	Fajnzylber, P., Maloney, W. F., & Montes-Rojas, G. V. (2009). Releasing constraints to growth or pushing on a string? Policies and performance of Mexican micro-firms. *The Journal of Development Studies*, *45*(7), 1027-1047.	Other population (both formal and informal firms; formality captured by tax payment)
13	Fandl, K., & Bustamante Izquierdo, J. (2016). Incentivizing Gray Market Entrepreneurs in Emerging Markets. *Northwestern Journal of International Law & Business, 37*, 415.	No regressions (descriptive statistics)
14	Gandelman, N., & Rasteletti, A. (2017). Credit constraints, sector informality and firm investments: Evidence from a panel of uruguayan firms. *Journal of applied economics*, *20*(2), 351-372.	Other intervention (impact of credit on investment via sector formality rate) and other population (both formal and informal)
15	Jaramillo Baanante, M. (2009). *The demand for formality among informal firms. Evidences from downtown Lima*. German Development Institute Working paper No. 12/2009	No regressions (descriptive statistics) and other comparison (comparing already formal and informal firms)

16	Jaramillo, M. (2013). Is there demand for formality among informal firms? Evidence from microfirms in downtown Lima. Grupo de Análisis para el Desarrollo (GRADE) Research Progress Paper.	No regressions (descriptive statistics) and other comparison (comparing already formal and informal firms)
17	Kaplan, D. S., Piedra, E., & Seira, E. (2011). Entry regulation and business start-ups: Evidence from Mexico. Journal of Public Economics, 95(11-12), 1501-1515.	Other intervention (impact of reform cutting costs of formality on the creation of new firms) and different outcome (creation of new firms)
18	Malesky, E., & Taussig, M. (2009). Out of the gray: The impact of provincial institutions on business formalization in Vietnam. *Journal of East Asian Studies, 9*(2), 249-290.	Other intervention (impact of law in Vietnam on formalization) and different outcome (formalization)
19	McCulloch, N., Schulze, G., & Voss, J. (2010). What determines firms decisions to formalize. *Evidence from rural Indonesia. University of Freiburg IEP Discussion Paper*, (13).	Other comparison (comparing already formal and informal firms)
20	McKenzie, D., & Sakho, Y. S. (2010). Does it pay firms to register for taxes? The impact of formality on firm profitability. Journal of Development Economics, 91(1), 15-24.	Other comparison (comparing already formal and informal firms)
21	Monteiro, J., & Assunção, J. J. (2006). Outgoing the shadows: estimating the impact of bureaucracy simplification and tax cut on formality and investment. *Pontifícia Universidáde Católica, Department of Economics, Rio de Janeiro*.	Other intervention (impact of reform simplifying registration on formalization) and other outcome (business profile before and after reform)
22	Monteiro, J. C., & Assunção, J. J. (2012). Coming out of the shadows? Estimating the impact of bureaucracy simplification and tax cut on formality in Brazilian microenterprises. *Journal of Development Economics*, 99(1), 105-115.	Other intervention (impact of reform simplifying registration on formalization) and other outcome (business profile before and after reform)
23	Sharma, S. (2014). Benefits of a registration policy for microenterprise performance in India. *Small Business Economics*, 42(1), 153-164.	Other comparison (comparing already formal and informal firms)
24	Siba, E. (2015). Returns to physical capital in Ethiopia: Comparative analysis of formal and informal firms. *World Development*, 68, 215-229.	Other comparison (comparing already formal and informal firms)
25	Torm, N. E. (2013). *Firms and Workers in Transition: A Series of Micro Studies on Vietnam*. Department of Economics, University of Copenhagen.	Double version
26	Wellalage, N. H., & Locke, S. (2016). Informality and credit constraints: evidence from Sub-Saharan African MSEs. *Applied Economics*, 48(29), 2756-2770.	Other intervention (effects of informality on credit constrains) and other population (already formal and informal)
27	Williams, C. C., Martinez–Perez, A., & Kedir, A. M. (2017). Informal entrepreneurship in developing economies: The impacts of starting up unregistered on firm performance. *Entrepreneurship Theory and Practice*, 41(5), 773-799.	Other comparison (comparing formal firms with other formal firms that were previously informal)

Source: Authors' elaboration.

Appendix 5: Studies included in the meta-analysis: Overview of the evidence base

Study (year)	Pub type	Country	Data start	Data end	No of est.	Mean effect size	St. Dev.	Range	
Alcázar and Jaramillo (2016)	WP	Peru	2008	2010	30	0.030	0.061	-0.091	0.152
Benhassine et al. (2018)	PR	Benin	2014	2016	108	-0.006	0.019	-0.088	0.036
Berkel (2018)	WP	Mozambique	2012	2017	42	0.073	0.106	-0.135	0.258
Bich and La (2018)	WP	Vietnam	2005	2015	6	0.075	0.124	-0.085	0.251
Boly (2015)	WP	Vietnam	2005	2013	96	0.045	0.030	-0.018	0.130
Boly (2018)	PR	Vietnam	2005	2013	64	0.048	0.031	-0.064	0.137
Campos et al. (2015)	WP	Malawi	2011	2014	144	0.022	0.089	-0.104	0.492
Campos et al. (2018)	WP	Malawi	2011	2015	126	0.016	0.042	-0.017	0.297
Campos et al. (2019)	PR	Malawi	2011	2015	33	0.001	0.007	-0.013	0.020
de Mel et al. (2011)	WP	Sri Lanka	2008	2011	29	0.029	0.027	-0.042	0.059
de Mel et al. (2013)	PR	Sri Lanka	2008	2011	27	0.018	0.023	-0.042	0.049
Demenet (2016)	PR	Vietnam	2007	2009	165	0.030	0.057	-0.137	0.331
Fajnzylber et al. (2011)	PR	Brazil	1996	1997	156	0.023	0.026	-0.014	0.129
Gabrieli et al. (2012)	WP	Brazil	1997	1997	36	-0.006	0.055	-0.214	0.064
McCaig and Nanowsky (2018)	WP	Vietnam	2004	2008	130	0.024	0.090	-0.083	0.873
McCaig and Nanowsky (2019)	PR	Vietnam	2004	2008	42	0.015	0.073	-0.385	0.128
Rand (2017)	WP	Vietnam	2006	2016	8	0.045	0.042	-0.025	0.077
Rand and Torm (2012)	PR	Vietnam	2007	2009	14	0.060	0.021	0.007	0.089
Rocha et al. (2014)	WP	Brazil	2006	2012	12	0.006	0.017	-0.033	0.024
Rocha et al. (2018)	PR	Brazil	2006	2012	6	-0.002	0.005	-0.009	0.003

Note: PR refers to peer-reviewed articles, WP to working papers.

Appendix 6: Overview of the included studies

Study (year)	Summary	Policy action	Study design	Outcome indicators	Findings
Alcazar and Jaramillo (2016)	Reform simplifying procedures of business licensing in Peru.	Yes	Quasi-experimental	Income; profitability; number of workers; investment; loan applications	No significant impact of formalization on any of the considered outcomes.
Benhassine et al. (2018)	Field experiment testing three versions of the *Entreprenant Status* reform in Benin. The first treatment provides information and assistance for registering; the second treatment adds support to access training services and commercial banks; the third treatment helps firms preparing a tax form.	Yes	RCT	Sales; profits; employment (total number of employees); tax payment; contracted loans	Firms do not benefit much in the first two years after formalizing. They do not display higher profits and sales, do not hire more workers and do not gain improved access to credit. However, they benefit from business training and pay lower taxes due to a tax exemption scheme.
Berkel (2018)	The study exploits a unique panel dataset for investigating the relation between formalization and firm outcomes in Mozambique.	No intervention	Observational	Investment; formal accounts; access to credit; contract workers; inspections by officers; sales to state-owned enterprises; sales to individuals	Formalization significantly increases sales to state-owned enterprises and the issuing of formal contracts. Nonetheless, registration has no impact on investment, formal accounts, credit, inspections, and sales to individuals.
Bich and La (2018)	The study uses an unbalanced panel dataset of Vietnamese enterprises to explores the effects of business registration.	No intervention	Observational	Revenues; tax payment to revenue ratio	Formalization improves revenues of enterprises, although it concomitantly increases tax payment. Yet, formalization does not bring benefits to top-tier firms that, on average, pay two times more taxes than before formalization.

Study (year)	Summary	Policy action	Study design	Outcome indicators	Findings
Boly (2015)	The study analyzes a panel dataset of informal firms operating in Vietnam exploring the effect of formalization on the performance of firms switching from informal to formal status.	No intervention	Observational	Profits; value added; revenues	Formalization benefits firms by improving profits, revenues, and value added. The benefits persist over time.
Boly (2018)	Published version with updated figures. This study adopts different estimation methods (randomized effects and fixed effects).	No intervention	Observational	Profit; type of machinery; costumer base; access to credit; membership in associations; advertisement; payment of bribes	Formalization systematically increases profits and value added, improves access to machinery, credit, and advertisement. However, formality is negatively associated with the customer base and the likelihood of being a member of a business association. Firms pay more bribes after formalization
Campos et al. (2015)	The study assesses the short-term impacts of a field experiment providing incremental incentives to three treatment groups. The first treatment offers costless business registration; the second treatment provides free registration along with tax registration; the third treatment combines free registration with a bank account.	Yes	RCT	Financial services and savings; separation of business and household money; access to credit and insurance	The first two treatments have no effects, while the third treatment enhanced financial access, savings, and separation from business and household money.

Study (year)	Summary	Policy action	Study design	Outcome indicators	Findings
Campos et al. (2018)	This study explores the effects on the longer run by including two additional follow-up surveys to Campos et al. (2015).	Yes	RCT	Sales; profits; inspections; access to credit; tax payment; trust in the state; export license; member of the Chamber of Commerce; change in location; participation in government tenders	Only the third treatment improved sales, profits, and access to financial services.
Campos et al. (2019)	Policy report providing additional insights about the impact on harassment and on formal market. Thus, the paper adds information to the two previous studies (i.e. Campos et al. 2015 and 2018)	Yes	RCT	Harassment; formal market	None of the treatments has a significant impact on inspections, requests for bribes, harassment from the state, and tax payments. Additionally, the study reports no effects on formal market indicators, such as access to bank loan, changing location of the business, and participating in government tenders.
De Mel et al. (2011)	Field experiment assigning firms to four treatments providing incremental monetary incentives to support business registration.	Yes	RCT	Sales; profits; taxes; formal accounting; bank account; attitude toward government	The effects of formalization on revenues and profits are modest. Additionally, the study reports no impact on taxes and formal accounting; but positive impact on attitude toward government.
De Mel et al. (2013)	Published version of De Mel et al. (2011). This study provides information after nine additional months of follow-up surveys.	Yes	RCT	Sales; profits; paid workers; capital stock	Formalization has positive albeit in-significant effects on profits and sales, loan application, and bank accounts, and negative, albeit in-significant, effects on tax payments

Study (year)	Summary	Policy action	Study design	Outcome indicators	Findings
Demenet et al. (2016)	The study uses a panel dataset of Vietnamese informal firms for assessing the effects of formalization and tax registration on performance	No intervention	Observational	Annual value added; size; access to electricity and internet; access to water, phone, and mobile phone; outdoor permit; borrowed money; investments; bookkeeping	Formalization improves profits and value added; it does not affect the performances of self-employees.
Fajnzylber et al. (2011)	Study of the SIMPLES program in Brazil, aiming at reducing the procedures and costs of registration	Yes	Quasi-experimental	Revenues; profits; employment; fixed capital; access to credit; fixed location; sales to firms	Newly formalized firms have higher revenues, profits, and capital intensity, and employ more workers. Nonetheless, formality does not systematically improve access to credit; it increases the likelihood of operating in a fixed location only for enterprises with more than one worker.
Gabrieli et al. (2012)	Study of the SIMPLES program in Brazil, aiming at reducing the procedures and costs of registration	Yes	Quasi-experimental	Revenues	Overall, formalization has a positive and significant effect on revenues; low-ability entrepreneurs perceived higher benefits from formalizing their business.
McCaig and Nanowsky (2018)	The study exploits a panel dataset on Vietnamese enterprises to estimate the impact of obtaining a license on firm performance	No intervention	Observational	Revenues; employment; taxes; access to credit	Formalization does not improve any of the studied performance indicators. Additionally, controlling for pre-formalization trends further reduces the effects of formalization.

Study (year)	Summary	Policy action	Study design	Outcome indicators	Findings
McCaig and Nanowsky (2019)	Published version of McCaig and Nanowsky (2018). This study does not control for pre-formalization trends.	No intervention	Observational	Revenues; employment; taxes; access to credit	The study reports no effects of formalization on the studied performance indicators.
Rand and Torm (2012)	The study uses a panel dataset to assess the effects of formalization on various business performance outcomes in Vietnam.	No intervention	Observational	Profits; employment; investment; access to credit	Registration is positively associated with an increase in profits and investments, and negatively correlated with the use of casual work. The results imply that formalization can be convenient for both employers and workers.
Rand (2017)	The study uses a panel dataset of Vietnamese manufacturing firms for exploring the correlation between business formalization and revenue growth.	No intervention	Observational	Value-added growth; revenue growth	Overall, formalization is beneficial for enterprises switching formality status, and the benefits are higher for larger firms.
Rocha et al. (2014)	Study of the Individual Micro-Entrepreneur Program (IMP) implemented in Brazil. The program cuts the costs of formalization for entrepreneurs with at most one employee. The program was implemented in two stages: in the first stage, it eliminates the costs of registration; in the second stage, it reduces taxation.	Yes	Observational	Income	Formalization does not improve entrepreneurs' income.

Study (year)	Summary	Policy action	Study design	Outcome indicators	Findings
Rocha et al. (2018)	Published version of Rocha et al. (2018). This study adds information about the effects of income by quantile.	Yes	Observational	Income	Formalization has a negative, albeit in-significant, association with entrepreneurial income

Note: Authors' elaboration.

Appendix 7: Results by performance indicator

Table A1: Average PCC by performance indicator

Panel A: Revenues					
Method	Effect size	SE	95% confidence interval		Observations
Simple average effect	0.026	0.002	0.022	0.029	586
Weighted average	0.025	0.002	0.022	0.028	585
Panel B: Access to credit					
Method	Effect size	SE	95% confidence interval		Observations
Simple average effect	0.023	0.005	0.013	0.034	206
Weighted average	0.022	0.005	0.012	0.033	206
Panel C: Access to inputs					
Method	Effect size	SE	95% confidence interval		Observations
Simple average effect	0.039	0.009	0.022	0.057	112
Weighted average	0.034	0.007	0.020	0.048	112
Panel D: Other performance indicators					
Method	Effect size	SE	95% confidence interval		Observations
Simple average effect	0.020	0.003	0.014	0.027	370
Weighted average	0.015	0.002	0.011	0.019	370

Note: See Table 2.

Table A2: Bivariate MRA for FAT-PET: Publication bias and true effect – by performance indicator

Panel A - Revenues						
	(1)		(2)		(3)	
Variables	**CDA**		**Wild bootstrapped**		**MEM**	
	Coefficient	*t*-value	Coefficient	*p*-value	Coefficient	*t*-value
Bias (FAT)	-0.090	-0.14	-0.090**	0.06	-0.096	-0.18
Genuine effect (PET)	0.026***	6.14	0.026	0.22	0.025***	4.07
Observations	586		586		586	
Studies	17		17		17	
Panel B - Access to credit						
	(1)		(2)		(3)	
Variables	**CDA**		**Wild bootstrapped**		**MEM**	
	Coefficient	*t*-value	Coefficient	*p*-value	Coefficient	*t*-value
Bias (FAT)	0.831	1.08	0.831	1.00	0.831	1.21
Genuine effect (PET)	0.010	0.67	0.010	0.48	0.010	1.15
Observations	206		206		206	
Studies	12		12		12	
Panel C - Access to inputs						
	(1)		(2)		(3)	
Variables	**CDA**		**Wild bootstrapped**		**MEM**	
	Coefficient	*t*-value	Coefficient	*p*-value	Coefficient	*t*-value
Bias (FAT)	0.363	1.77	0.363	1.00	0.363	0.73
Genuine effect (PET)	0.024**	2.90	0.024	0.26	0.024*	1.84
Observations	112		112		112	
Studies	5		5		5	
Panel D - Other indicators						
	(1)		(2)		(3)	
Variables	**CDA**		**Wild bootstrapped**		**MEM**	
	Coefficient	*t*-value	Coefficient	*p*-value	Coefficient	*t*-value
Bias (FAT)	-0.412	-1.03	-0.365***	0.00	-0.034	-0.07
Genuine effect (PET)	0.020***	3.97	0.020	0.70	0.014**	2.48
Observations	370		370		370	
Studies	15		15		15	

Note: See Table 3.

6. The bright side of formalization policies! Meta-analysis of the benefits of policy-induced versus self-induced formalization[10]

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.

6.1. Introduction

Informal firms represent 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 et al., 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

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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 from external interventions. The evidence gathered by now is far from being conclusive. Studies report heterogeneous findings, analyze 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 (Tingval et al., 2019; Demena, 2015), few reviews and meta-analyses explore the impact of policy actions on business formalization (Floridi et al., 2020). To the best of our knowledge, there are no meta-analyses investigating firm performance induced by formalization.

6.2. 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 hits 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 license. 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 search (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 analyzing 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. 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.

[Table 1]

We include 9 peer-reviewed and 11 unpublished studies. 11 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.

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 analyze 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 et al. (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).

[Table 2]

6.3. 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 a 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.

[Figure 1]

[Table 3]

To assess whether the bivariate FAT-PET results are influenced 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 benefits firms by improving revenues and access to services. Though the effect is small, this finding supports the view of informality as incubator for firms, with formalization benefits arising after a trial stage in the informal sector (Williams et al., 2017). Further analyzing the two sub-samples with policy-induced and 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.

[Table 4]

[Figure 2]

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.

6.4. 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.

Tables and figures

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	
License	=1 if formality measured as license	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

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 1/5/10% level, respectively.

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 1/5/10% level, respectively.

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.

Figure 1. Funnel plots - Policy-induced (right, N=707) and self-induced (left, N=567)
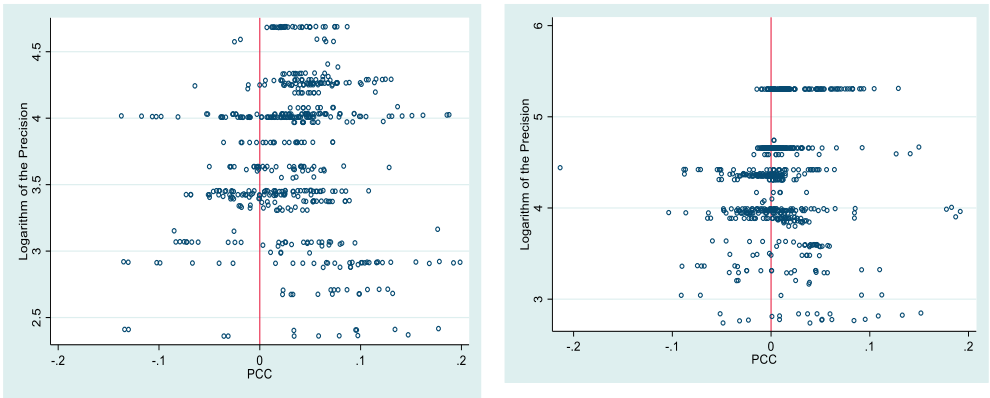
Figure 2. Multivariate MRA - Coefficients and 95% confidence intervals
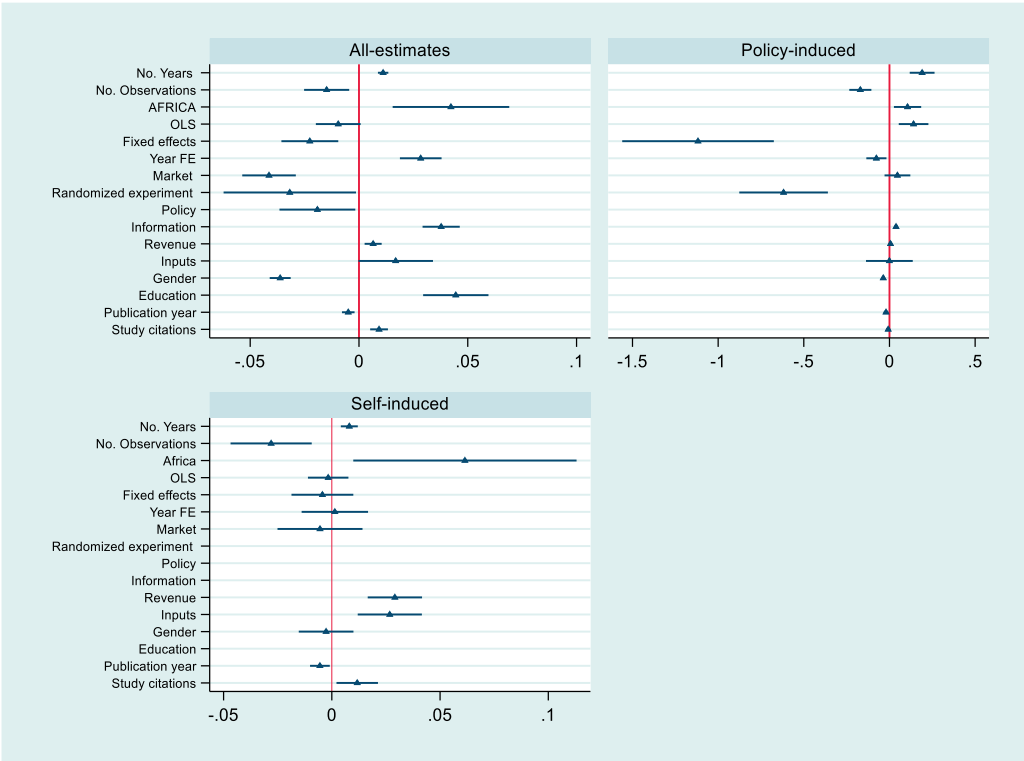
Part 2:

Overcoming the formal-informal dichotomy.

Toward a new approach

7. Opening the Pandora's box of business registration: Evidence from firms in West Java, Indonesia

Abstract

Drawing on institutionalist and social network theories, this paper empirically investigates the characteristics of registered and unregistered firms in Indonesia. The study exploits a primary cross-sectional dataset of 400 firms operating in three cities of West Java. The analysis combines a linear probability model and descriptive statistics with qualitative methods. The findings indicate that registered enterprises display higher policy involvement (participation in government projects) and civic engagement (trade union membership), whereas unregistered firms exploit informal networks and cooperatives to access services and markets and to negotiate with the authorities. The findings imply that informal entrepreneurs are penalized in terms of limited participation in the policy-making process and excluded from programs that could enhance their entrepreneurial ability. Furthermore, entrepreneurs participating in informal cooperatives are more likely to run unregistered firms as they face low social costs of informality within those groups. The limited policy participation and civic engagement of informal entrepreneurs represents an institutional gap as well as a market failure. Importantly, even if women run a registered business, they do not benefit from improved policy participation. Thus, policy actions to foster business registration should start by improving the political participation and access to business services of informal entrepreneurs to create an inclusive space. Moreover, policies are likely to be most successful if they embrace a group approach that targets informal cooperatives and networks.

7.1. Introduction

The informal economy is an essential element of the Indonesian economy, representing 20.5% of the GDP in 2017 (Medina and Schneider, 2019). Informal employment, which is one of the two components of the informal economy, was about 83.2% of total employment in 2017.[11] Informal firms, which constitute the second component of the informal economy, account for around 93% of the Indonesian micro, small and medium enterprises (mSMEs)

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[11] ILOSTAT, 2017

(Rothenberg et al., 2015). Indonesia represents an interesting case since the high growth rate experienced in the past years has not been accompanied by an analogous contraction of the informal economy. Graph 1 shows that the informal economy's contribution to GDP decreased from almost 27% in 1991 to 20.5% in 2017, which suggests that the shadow economy has maintained its importance to a large extent.

The spread of informal activities during the first stage has been attributed to the economic transformation since the 1970s. In the two decades that followed, Indonesia transitioned from an agriculture-based economy to a manufacture-based economy (Rothenberg et al., 2015). The modernization of the primary sector pushed the workforce to the cities, which were not ready to cope with the increasing urbanization. In turn, the fast-growing group of excess workers that could not find a job in the formal sector was partially absorbed by the informal sector, which offered the only alternative to unemployment (Manning and Patromo, 2013). In this period, the informal sector changed its characteristics from rural and traditional activities to modern urban activities.

The years before the crisis of 1997/98 saw a progressive decline of the informal economy, but the crisis led to an inversion of this trend, and the informal economy gained importance again (Nazara, 2010; Suharto, 2002). Many workers that had become unemployed during the crisis found a job in the informal sector (Berry et al., 2001). Estimates suggest that informal employment shares rose from 39% in the period 1985/1989 to 78% in 1995/1999 (Charmes, 2012). Additionally, the introduction of the minimum wage law in 2001-2002 increased undeclared and under-declared employment. This, in turn, accentuated the income gap between formal and informal wage workers, particularly penalizing women and young workers (Suryahadi et al., 2003). In the aftermath of the economic crisis, the Indonesian economy recovered and started growing at a high rate; however, informal activities persevered (Rothenberg et al., 2015). New contractual forms, precarious work, and the contraction of the public sector pushed many workers into the informal sector (Tjandraningsih, 2013). Moreover, the economic boom accelerated urbanization, contributing to the spread of informal settlements and contested spaces where informal economic activities could flourish (Jones, 2017). Lastly, recent structural changes, such as the rise of the digital economy, created a new unregulated sector where informal transactions and informal activities, such as online businesses, can flourish (Pangestu and Dewi, 2017).

[Graph 1]

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Indonesia's government has implemented various reforms to foster the registration of informal firms as part of a broader strategy for supporting the transition from the informal to the formal economy. Despite several reforms that aim at improving the registration system, informal enterprises still represent most of the businesses operating in Indonesia. Hence, business registration remains a Pandora's box that has been interpreted and reinterpreted many times.

This paper explores entrepreneurs' decisions concerning business registration on the basis of a case study of entrepreneurs operating in three cities of West Java, Indonesia. The analysis explores a cross-sectional dataset of 400 registered and unregistered enterprises, providing information about respondents' characteristics and business profiles. The quantitative data are combined with qualitative information from in-depth discussions with survey participants, focus group discussions (FGDs) with networks and associations of informal firms, interviews with policymakers, research centres, and police officers. The main findings indicate that registered firms display higher access to Government programs and are more likely to be part of trade unions and associations. In turn, they are less likely to be part of informal cooperatives and networks. Conversely, informal entrepreneurs rely on informal networks and cooperatives for coping with institutional gaps and market failures, and for bargaining with the authorities. The main finding of the study is that the limited policy participation and civic engagement of informal entrepreneurs represents an institutional gap as well as a market failure.

The aim of this study is to contribute to the literature on informal entrepreneurship and explain how policy participation, civic engagement, and informal networks can affect the preferences of entrepreneurs concerning business registration. The research fits best within institutionalist approaches that argue that the institutional asymmetry between official and informal norms explains the spread of informal activities (Feige, 1997; Gërxhani, 2004; Williams et al., 2015). Additionally, the study draws on the literature that stresses the relevance of informal networks (Cope et al., 2007; Jack et al., 2010; Hillenkamp et al., 2013; Webb et al., 2014) and perceived institutional support (Ashan et al., 2020) in constrained business environments. The study further highlights that informal entrepreneurs can exploit informal cooperatives and networks to access markets and services and negotiate with authorities and other actors. Although membership in informal cooperatives can work against

business registration, it represents a valid instrument for accessing markets and services for informal entrepreneurs.

This paper highlights the importance of political participation, civic engagement, and informal networks and explores their correlation with business registration. Put differently, I consider the gap between formality and informality in terms of political participation, civic engagement, and informal networks

The remainder of the paper is structured as follows: Section 2 offers a review of the literature on firm registration and describes the Indonesian context. Section 3 introduces the methodology and the empirical approach adopted in the analysis. Section 5 presents the results and discusses the main reasons for business registration. Section 6 concludes the paper by outlining the implications for policymaking.

7.2. Literature review

Conceptualizations of the informal economy

As the informal economy became central in the academic debate, scholars advanced theories for explaining business registration decisions. A popular approach, referred to as the exclusion model, explains that informality is a result of the high time and monetary costs of registration. According to this view, entrepreneurs decide on formalization depending on the expected registration costs; high costs prevent firms from engaging with the formal sector (De Soto, 1990, 2003). In contrast, a second approach argues that entrepreneurs consider the costs and benefits of formalization when taking decisions (Maloney, 2004; Perry et al., 2007). As noted by McKenzie and Sakho (2010), a profit-maximizing firm becomes formal if and only if the expected discounted value of the net benefits of formalization outweighs the upfront costs. Thus, in the absence of registration costs, the decision to register would depend on formalization profits. However, it is also argued that informal firms are too small to perceive eventual benefits from registration (La Porta and Shleifer, 2008; 2014). An alternative view suggests that many firms fail to register due to the low level of actual and perceived enforcement and widespread corrupt practices such as bribery (Farrell, 2004, 2006; Baily et al., 2006; Loayza, 2007; De Giorgi et al., 2017). According to this view, firms fail to register due to poor law enforcement and high levels of corruption.

While this first strand of the literature tends to explain formality as a choice based on economic factors, a second strand explains informality as a choice driven by institutional, cultural, or other non-economic factors. Seminal institutionalist scholars stress that both formal and informal institutions affect strategic business decisions such as the engagement with the informal economy (Feige, 1997; Gërxhani, 2004; Tonoyan et al., 2010; Williams and Vorley, 2015; Williams et al., 2017). Formal institutions are officially codified laws and social rules, whereas informal institutions are socially shared norms, values, and beliefs (North, 1990; Helmke and Levitsky, 2004). Drawing on this distinction, a group of institutionalist scholars argues that when formal and informal institutions clash, non-compliant behaviours proliferate (Feige, 1997; Gërxhani, 2004; Williams et al., 2015). This approach, also referred to as the *institutional asymmetry model*, argues that the asymmetry between codified laws of formal institutions and the socially shared unwritten norms of informal institutions explain the diffusion of informal enterprises and undeclared work (Williams et al., 2014; Williams and Horodnic, 2015, 2016; Williams and Franic, 2016; Williams and Said, 2016). Webb et al. (2009) argues that the gap between formal and informal institutions could be formulated in terms of legality vis-à-vis legitimacy. When legal rules are perceived as illegitimate by most of a group's members, an informal economy can flourish.

Other scholars conceive economic activities as socially embedded practices (Granovetter, 1985) and focus on how entrepreneurs exploit their interpersonal networks. The notion of social capital is central to this view, with social capital being defined as the actors' ability to secure benefits by using their individual and social networks (Portes and Castells, 1989). The importance of social capital is particularly evident for informal activities, as social capital secures transactions relying on mutual and enforceable trust among the network members (Portes, 1994; Granovetter, 2005; Cope et al., 2007). The focus is on how informal entrepreneurs exploit their social capital for accessing information (Martin-Rios and Erhardt, 2017), capital and labour (Kloosterman, 2010; Webb et al., 2014), or for securing property rights and transactions in the absence of formal rules (Slack, 2007) or in the presence of institutional incongruences (Webb et al., 2014). Informal norms such as reciprocity and trust among members of the networks serve to secure transactions and ensure property rights (Granovetter, 2005; Slack, 2007; Slack et al., 2017). In addition, scholars referring to the substantive economy framework as introduced by Polanyi (1957) argue that the role of

networks goes beyond securing transactions and serves as mechanisms for risk minimization, securing livelihoods, and preserving social ties (Hillenkamp et al., 2013).

If networks represent an essential element affecting entrepreneurs' strategic decisions, it is crucial to distinguish between different groups or networks. This paper distinguishes between official associations and trade unions vis-à-vis informal organizations and networks. Without a doubt, the former constitute an excellent channel for improving political dialogue and civic engagement (Slack, 2007). Nonetheless, informal organizations and networks can be valid instruments for negotiating with officers and local authorities and coping with the limited access to markets and services. Although networks are vital for coping with institutional gaps and market failures, the participation of an entrepreneur in informal networks can also work against business registration. The majority of the group members run unregistered activities, implying that this is the socially accepted practice within the organization. The group's identity is vital, since often these groups are constituted based on sectoral, geographical, or ethnic identifiers (Ram, 1994; Webb et al., 2009), and the members are connected by strong social ties (Jack et al., 2010). Thus, business registration becomes less attractive for members of informal organizations who have access to markets and face low costs of non-compliance. Moreover, the previous literature has shown that membership in an association is correlated with participation in informal work (Slack 2007). Thus, as Webb et al. (2009) point out, these groups may consider legitimate what is deemed illegal by laws and regulations. In other words, informal entrepreneurs face low social costs when running an unregistered business is a socially accepted practice within the networks.

The informal economy in Indonesia

The persistence of the Indonesian informal economy over time indicates that it has developed alongside the formal economy and it has been equally affected by the socio-economic changes that occurred in the past sixty years. Consequentially, informal activities that were initially mostly traditional rural activities today include modern urban activities occasionally displaying entrepreneurial characteristics.

Nowadays, the Indonesian informal economy is a heterogeneous set of activities pervasive throughout the three economic sectors. As a result, as for many low and middle-income countries, next to survivalist necessity-driven activities, there are many market-oriented opportunity-driven activities (Williams and Youssef, 2014; Berner et al., 2012). Although

some of the more structured groups of the informal sector have an entrepreneurial character and sometimes high incomes (Alisjahbana and Manning, 2006), the informal sector is still vulnerable, with little capital, limited markets, inadequate economic returns, and low levels of living standards (Suharto 2002, 116). Informal workers in mSMEs and self-employees typically have limited access to social protection (Setyonaluri and Radjiman, 2016) and are often trapped in poverty. Informal workers display low socio-economic intergenerational mobility, which traps them in the informal sector (Manning and Patromo, 2013). For instance, a study by Manning and Patromo (2013) demonstrates that the children of migrants working in the informal economy are more likely to work in the informal sector compared to the children of non-migrants working in the informal economy.

Informal activities are often conducted by youth, women (Babbitt et al., 2015; Fagertun, 2017), migrant workers (Manning and Patromo, 2013), and other marginalized groups (Fagertun, 2017). For instance, Fagertun (2017) reports that Bali's transformation in the tourism labour market made many youths, women, and low-caste Hindus enter the informal sector. Women face a particularly precarious situation as they often have to choose between unpaid domestic work or informal work (Gallaway and Bersanek, 2002). Among the most vulnerable groups in the informal economy are street vendors, especially food street vendors (Brata, 2010).

Despite the discussed vulnerabilities of the informal sector in Indonesia, several studies have stressed the entrepreneurial character of many informal entrepreneurs, which are sometimes also highly educated and well trained, and can conduct successful activities (Fathy and Rachmawan, 2020; Muljarijadi and Thio, 2008). The Indonesian informal sector is very heterogeneous and informal firms display many different characteristics (Alisjahbana and Manning, 2006; Rothenberg et al., 2016).

Other studies have shown that many entrepreneurs opt out of the formal sector due to the modest advantages of formality. For instance, Rothenberg et al. (2015) report that registration costs are not the main factor preventing Indonesian informal enterprises from shifting to formality. It is rather the low benefits associated with registration that are an important driver of the persistence of informal activities. McCulloch et al. (2010) found that, while rural formal businesses employ more workers, they also pay less tax, implying that informality is not necessarily driven by the desire to avoid formality costs in the form of taxes. Similarly, Muljarijadi and Thio (2008) found that higher capital assets and ownership of commodities

increase the willingness to pay for waste disposal among informal vendors in Bandung, implying that there is potential for tax increases if the government provides services in turn.

Indonesian policies targeted towards the informal sector

In the past 20 years, Indonesia's government has put in place several efforts to promote the registration of informal enterprises motivated by the aspiration of unlocking their growth potential and improving competition in the market. The first attempt to simplify business formalization, in 2000, consisted in decentralizing the registration and licensing system. However, the process of decentralization led to an overlap of the registration system at both the local and national level and a proliferation of different types of registration and licenses (Steer, 2006). In the same period, the government launched One-Stop-Shop (OSS) programs to simplify business procedures and to reduce the registration and licensing time (Rustiani et al., 2016). The implementation of OSS followed three stages. In the first stage, from 2000 to 2006, local governments were given freedom and power to regulate the registration and licensing. Yet, due to the proliferation of rules and regulations, OSS failed to reduce the time and registration costs. The second stage consisted of implementing pilot projects in several provinces, with the prospect of replicating the successful programs at larger scale. In this stage, OSS programs led to a substantial reduction of time and business registration costs, although these cost saving measures had a limited impact on formalization (Rothenberg et al., 2015). The third stage introduced new OSS systems across the country.

The most important attempt at reforming registration and licensing processes was the reform of 2007 introduced by the central government. The reform exempted small individual enterprises (household businesses or activities that cover the owner's daily needs), mobile vendors, street vendors, and sidewalk vendors from the legal obligation to register and to have a license (Ministry of Trade of Indonesia, 2007a, 2007b). This reform made registration not mandatory for individual small companies with net assets lower than 200 million Rupiahs (14,600 USD), while at the same time making slightly larger firms face a small risk of detection for non-registration. The costs of registration are likely to have limited effects on the decision to register a business because registration is costless for the majority of the firms and the taxation for trading licenses cannot exceed 100,000 Rupiahs (7.30 USD) (Ministry of Trade of Indonesia, 2007b).

In the process of decentralization, local governments obtained the right to apply local regulations towards street vending. Therefore, policies on local street vendors varied depending on the municipality. The two main strategies for managing street vendors were regulations (*penataan*) and controls (*penertiban*), including spatial zoning and evictions or demolitions (Morrell et al., 2011). The spatial zoning approach consists of relocating street vendors to designated structures or designated zones. Although in some cases the relocations happen with no confrontations and with the involvement of the business owners, many street vendors return to the original location due to the absence of mechanisms facilitating their integration within the (formal) market where they were moved to (Taylor and Song, 2016). The relocation tends to bear disadvantages for the vendors. For instance, the Government of Surabaya relocated street vendors in food centres that were often barely used, resulting in a loss of revenues and discontent among the relocated vendors (Azizah, 2018).

A different strategy that is often adopted is the demolition of the structures used by street vendors or their eviction. Especially after the 1997 crisis, many local governments addressed the growth in street vendors by relocating some of them and evicting the remaining, without offering other solutions (Morrell et al., 2011). Street vendors were also chased out of busy areas (Suharto, 2003). The eviction strategy does not come without contestation, as often tensions and clashes between business owners and the police are reported (Suharto, 2003). Furthermore, the eviction strategies have shown to be of limited effectiveness. Often, street vendors return to the place of eviction after a while. They exploit their social capital for bargaining with the authorities and bribing the officers (Fathy and Rachmawan, 2020: 86).

A third less popular approach is to promote inclusive policies for finding optimal solutions that consider all the stakeholders (Morrell et al., 2011). For instance, an effective strategy includes local leaders and street vendors in the decision-making process (Permana et al., 2016; Fahmi et al., 2016). In principle, collaborative planning can produce stronger local economies and more creative clusters. However, Indonesian participatory practices are often only nominally inclusive. Street vendors' involvement in the policy-making process is often hindered by territorial, geographical, or even ethnic discrimination (Morrell et al., 2011).

7.3. Methodology

Data collection

The analysis exploits an original dataset of primary data consisting of 400 interviews among registered and unregistered enterprises operating in three West Javanese cities (Bandung, Bogor, and Cirebon). The survey employs a structured questionnaire that was refined after a pilot. The data collection took place between August 2016 and July 2017. The questionnaire collected information on respondents' demographic characteristics, enterprise-specific features and business management strategies. The interviews were carried out in Bahasa Indonesian by the author in collaboration with a local expert and six interviewers. The interviewers were trained to ensure consistency across interviews. Each interviewer administered the questionnaires in specific quarters of the city to ensure good spatial coverage.

The data collection relied on purposive sampling and snowball sampling techniques. The latter is a widespread technique for exploratory studies and for situations when randomized sampling is impossible, for instance, when the research focuses on hidden populations (Polese et al., 2011). Since unregistered enterprises are very careful to talk about their business and quickly suspect undesired state involvement, they are a hidden population. The sampling approach employed ensured that they were adequately covered in the data collection. The interviewers asked each respondent to suggest the following respondents. For this purpose, it was necessary to identify various key informants who acted as 'entry points'. Importantly, I also aimed for a stratification along the sectoral composition of the economy of each of the three cities where the surveys were administered.

In addition to the surveys, the study employs (i) information from direct field observations, (ii) insights from four FGDs involving a total of 25 entrepreneurs and including information about the informal organizations' functioning; (iii) interviews with officers from the Ministry of Trade and the Ministry of Industry, (iv) informal interviews with research centres and police officers, and lastly (v) documentary analysis and analysis of the legal framework (i.e. laws, regulations, and amendments).

The study adopts a mixed-method approach using both quantitative and qualitative techniques of analysis. Triangulation is employed for integrating qualitative insights with

descriptive statistics. The quantitative methods employ descriptive statistics and several regression techniques such as the linear probability model (LPM) and the probit model. The qualitative methods involved an analysis of common themes emerging from the direct observations and the in-depth semi-structured interviews. As mentioned above, triangulation of the different findings and sources helps validate the reliability of the information collected and develop a comprehensive understanding of registration from the different stakeholders' points of view (entrepreneurs, associations, ministries, and police officers).

Empirical approach

The study's main objective is to investigate the characteristics of the registered firms vis-à-vis the unregistered businesses in three West Javanese cities. The main question that the study wants to address is whether policy participation and civic engagement are more common among members of the formal economy and whether informal cooperatives represent a valid substitute for accessing markets and services. I define policy participation as the firms' involvement in government programs and civic engagement as membership of official trade unions and sector associations. Furthermore, I include a proxy for participation in informal networks and other informal organizations. The equation below displays the general model for the analysis:

$$Y_i = \beta_0 + \beta_1 P_i + \beta_2 A_i + \beta_3 X_i + \beta_4 E_i + \beta_5 F_i + \beta_6 N_i + \lambda_i + \nu_i + \varepsilon_i,$$

where the outcome variable Y_i is a dummy variable that takes the value of one if the business i is registered. P_i indicates policy participation (0-1 variable), A_i denotes the participation in associations and informal business cooperatives (0-1 variable), X_i is the set of individual factors such as the self-reported motivation underpinning business registration (perceived necessity, costs, risk, benefits associated with registration) and characteristics of the business owner (age, gender, education); E_i denotes business characteristics (type of business, sector of activity, age of the firm, business size, revenues, type of market, declared and undeclared permanent workers, fixed-term workers); F_i accounts for access to various business services and finance (access to international cooperation projects, BDS, official bank loans, use to microfinance, participation in rotatory credit systems, loans from relatives or friends). N_i denotes the set of variables capturing the interactions with other enterprises (joint purchase with other enterprises, joint sale of products with other enterprises, and sales to other firms). Finally, λ and ν are fixed effects. The former identifies the location (i.e. the city) where the

business operates and the latter the enumerator who conducted the interview. Table 1 displays and briefly describes the list of variables included in the analysis.

[Table 1]

Characteristics of the dataset

The analysis exploits a dataset of 400 registered and unregistered enterprises operating in three West Javanese cities. Business registration represents the dependent variable in the analysis. Given the variety of business permits and licenses in Indonesia (Steer, 2006), this study adopts a definition of registered businesses as firms that recorded their business with the Office of Company Registration.

The empirical model's main explanatory variables are those related to the business's policy participation, the membership in official trade unions and sector associations, and participation in informal institutions such as informal networks and other informal organizations. Overall, the sampled enterprises have low access to government programs (12%). Only one out of five entrepreneurs is a member of a formal association (20%) and informal networks are only used by 7.8% of the respondents. The limited institutional participation implies that most of the sampled enterprises operate individually and rely on their own networks, friends, and kinship (Levenson and Maloney, 1999; Hillenkamp et al., 2013; Williams et al., 2015).

The dataset includes various demographic characteristics of the entrepreneur that might correlate with registering the business, such as age, gender, and education. Several empirical studies report that owners of informal businesses are mainly youth, women, and less educated people; thus, it is crucial to control for those characteristics in the analysis. The respondents' average age in our sample is 37 years, and women run 31.4% of the interviewed enterprises. This rate is lower than the 39.1% of women engaged in non-rural employment at national level in 2017.[12] Most of the respondents have either a high school degree or a university degree (more than 70%), implying that the interviewed respondents are educated entrepreneurs on average.

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[12] ILOSTAT, 2017

Furthermore, the questionnaire includes questions concerning the enterprises' various characteristics, ranging from the sector of activity to the type of business, from the firm's age and size to the type of market and the annual revenues. The most represented sectors are food (44.1%) and garment (almost 19%), followed by manufacturing (13.9%) and services (5.5%); the remaining sectors represented are construction, mechanic and electricity, chemistry, farming, and high tech. The interviewed enterprises run the activities in various types of set-ups: itinerant, semi-permanent and permanent structures. Itinerant street vendors can be *Pedagang asongan* (mobile sellers), *Pedagang keliling* (itinerant small traders), and *Pedagang Kaki Lima* (literally translating as five feet traders; hereafter referred to as PKL) (Suharto, 2002). PKLs conduct their activities in small carts situated in a fixed location or large pushcarts that can be move around the streets. Other activities take place in semi-permanent (such as stalls covered with canvases) or permanent structures.

The average annual turnover is 339 million Rupiah, corresponding to US$ 24,050; however, such a figure needs to be read cautiously since it relies on self-reported revenues concerning the previous year. The firm's average age is ten years, indicating that, on average, the firms survive the infancy stage. Most of the enterprises operate in the local market (94%), along with the regional (17.8%) and the national markets (10.8%, multiple nominations were possible). Only a few firms export their products (5%). The average firm size is four employees, and nearly 1 out of 3 entrepreneurs is a self-employee. Many of the employees hired by the enterprises in our sample are undeclared workers (both fixed term and permanent workers). This is not surprising given the high rate of informal employment characterizing the Indonesian labour market.

Concerning access to business and financial services, the population studied displays a low rate of participation in BDS (11%) and international cooperation projects (3%), and only a minority have access to bank loans (nearly 3%) and microcredit programs (about 6%). This implies that the micro and small enterprises have to shoulder all costs themselves, or at least without the help of official institutions, and they have to fund investments without any official support. Only a few firms from the sample participate in rotatory credit systems (around 6%) or borrow money from relatives and friends (roughly 2%), implying that most entrepreneurs rely on business revenues and personal savings for conducting their activities.

Lastly, the descriptive statistics show that entrepreneurs from our sample have frequent interactions with other firms. Around half the enterprises (52%) sell their products to other

firms. In comparison, a lower share of enterprises sells their products jointly with other firms (13%) or purchase inputs jointly with other firms (16%). For further details of the variables employed in the analysis see Table 2.

[Table 2]

7.4. Results: Disentangling decisions about business (non)registration

This section uses descriptive statistics and multivariate regression results to identify the most common motivations for registering the business as reported by the survey participants. All the interviewed entrepreneurs were asked to explain why they registered or failed to register their business. Participants could provide more than one answer if their decisions reflected more than a single factor. I decided to allow for multiple answers since, as noted by Nguyen et al. (2014), the conjunction of several factors is likely to feed into the decision to formalize a business. The respondents' most popular answers can be sorted into five groups: necessity, benefits, costs, risks, and other types of answers. Graph 2 compares the percentage of answers provided by unregistered vis-à-vis registered firms.

Interestingly, of the majority of registered firm owners declared that they took their decision based on the perceived necessity (compliance morale) and the expected benefits. The share of unregistered firms answering that they took the decision based on the perceived costs and risks is higher than for formal firms. The findings indicate that entrepreneurs take their decision about business registration as it suits them and based on a range of reasons. Appendix 1 provides examples from the interviews that further show how decisions are taken. As pointed out by Welter et al. (2015), the informal sector's heterogeneity results in complex firm-level considerations about the necessity, costs, benefits and risk associated with formality.

[Graph 2]

It is important to recall that different formality regimes apply to self-employees and non-individual companies with a value of less than 200 million Rupiahs in net assets. Following the Regulation of the Ministry of Trade number 36 of 2007 (art. 4), registration is optional for small individual companies. In my sample, 137 of the interviewed entrepreneurs are self-employees that are not obliged to register their business but can voluntary do so if they want to. Thus, for these entrepreneurs the choice to register ultimately depends on whether they

perceive informality as a socially acceptable practice (Webb et al., 2009; Williams and Vorley, 2015; Williams et al., 2017). Table 3 describes the registration status of firms by type of activity. Of the 137 individual companies, ten registered even though it is not strictly compulsory for them.

On the other hand, of the 263 firms that are not self-employees and should be registered, only 70 (26.6%) had registered. Among those 263 firms, 193 entrepreneurs did not register their business because they mistakenly believed that they were not required to. These figures suggest that many entrepreneurs have imperfect information about the registration system, implying that information asymmetry may hinder business registration (at least to some extent).

[Table 3]

The analysis employs the linear probability model (LPM) to explore the main characteristics of registered vis-à-vis unregistered enterprises. The analysis reveals that access to government projects, membership of trade unions, and participation in informal cooperatives are important characteristics for distinguishing the formal entrepreneurs from the informal ones (Table 4).

[Table 4]

The findings indicate that registration benefits firms in terms of participation in government programs. Several factors may explain this result. First, business registration may be a requirement for participating in government projects. Second, participation may predispose entrepreneurs to a more positive perception of the government. It is plausible that those who benefit from programs and projects are more likely to register as they perceive the government as being in tune with their needs and priorities.

However, the findings are not conclusive as the dataset does not provide information on whether the firms joined the government programs before registering their business. Thus, endogeneity may be at play. I am not in a position to conclude that registration improves access to government services. Despite the potential reverse causality, what is key is that the detected correlation implies that registered firms can take advantage of government interventions for accessing markets and services, whereas informal entrepreneurs are left out from policy programs.

Moreover, the argument that the lack of government interventions can discourage business registration is supported by the fact that several participants complain about the absence of government support. For instance, in one of the FGDs, the street vendors of an informal network explained that the local government was entirely absent. Yet, one street vendor had taken part in a government program. He complained that the initiative consisted of providing two sessions of training rather than improving access to loans, assets, and services. Similarly, other informal entrepreneurs who participated in training programs provided by the local governments questioned the utility of the programs as the provided activities were not aligned with their priorities. In other words, when taking all the evidence in consideration, the findings point to a vicious circle: on the one hand registration may be a requirement for policy participation, thus policies exclude informal entrepreneurs. On the other hand, informal entrepreneurs may see their exclusion as detrimental and therefore become less prone to register and comply with the rules. Webb et al. (2009) refer to the above-described process as dis-identification. Dis-identification from governments can be an engine for non-compliant behaviours and an important factor forging the identity of informal groups (Webb et al., 2009). Francis Fukuyama (2018) in his book *Identity* explains how the sense of exclusion felt by informal vendors, together with their desire to be acknowledged as legitimate by the authorities, triggered a wave of protests in Tunisia and in many other North-African and Middle-Eastern countries, known as the *Arab Spring*.

The other two variables highlighted in this study are membership of formal associations and informal cooperatives or networks. The results show that owners of registered enterprises are more likely to be part of formal associations such as trade unions and sector associations. In contrast, they are less likely to be part of informal networks. This suggests that firms that are part of formal associations and trade unions are more likely to be represented in the policy-making process since often the formal organizations are invited to the negotiation table by the local governments. This may improve the perceived institutional support (Ashan et al., 2020) and thus predispose entrepreneurs to a more positive attitude toward local authorities. Additionally, it is plausible that some organizations require proof of business registration as a prerequisite for membership and, consequently, push entrepreneurs to register the business.

At the same time, registered enterprises are less likely to be part of informal cooperatives and networks. The majority of those cooperatives and networks are constituted by informal entrepreneurs who cluster in public squares, in large street corners, or along the streets. The

groups are sometimes formed on the basis of ethnicity (for instance, sellers from the Pandang province of Sumatra) or sector (for instance, catering, transport, or garment), implying that the affiliated enterprises have a strong group identity. The majority of these cooperatives and networks run a business without registration, implying that non-registration is a socially accepted practice within the group. The discrepancy between formal rules and informal, but socially accepted, practices can explain why entrepreneurs who operate in informal networks are less likely to opt for business registration (Helmke and Lewitsky, 2004; Williams and Vorley, 2015; Williams et al., 2017). Another explanation is that the prevalence of informal firms in these groups may send the message that obeying the law is optional, dissuading firms from formalizing according to the broken-windows theory of informality[13] (Bruhn and McKenzie, 2014).

Informal cooperatives and networks play two crucial roles: (i) they improve access to markets and services and secure transactions; (ii) they help in negotiations with authorities. While unregistered enterprises are excluded from government programs and trade unions, they can exploit informal cooperatives and networks to access markets and services as reported by the literature (Slack, 2007; Kloosterman, 2010; Webb et al., 2014). Moreover, informal groups are crucial when it comes to the daily negotiation with authorities and police officers.

Importantly, all these findings support the approach of progressively adding additional elements to the empirical model. To corroborate the validity of the results, I also employ a probit model as robustness test (Column 6 of Table 4). The findings are consistent with those obtained from LPM.

Given the informal sector's heterogeneity, I analyse the sub-samples of self-employees, non-individual companies, women, and men (Columns 1 to 4 of Table 5). Smaller firms may display lower participation since their small scale operations allow them to rely on kinship and friends to access the required capital and services (Hillenkamp et al., 2013). Several scholars argue that institutional involvement is likely to increase with the business size as well as age (Levenson and Maloney, 1999; Jackle and Li, 2006). Moreover, women entrepreneurs are likely to face more obstacles and challenges compared to their male counterparts. For instance, women face even more limited access to loans, more frequent

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[13] The broken windows theory suggests that signs of disorder, such as broken windows and graffiti, induce other types of disorders and petty crime (Keizer et al., 2008). Applying this theory to informal firms suggests that the diffusion of activities run without registration encourages other firms not to register their business.

harassment by the police, limited bargaining power, or limited decision power concerning budget allocation and strategic business decisions.

[Table 5]

The findings of the sub-group analyses are as follows: The identified participation gap is most pronounced for the sub-sample of non-individual companies. Registered non-individual companies display a higher policy participation and more civic engagement and are less likely to be a member of an informal cooperative compared to their non-registered counterparts. Women are the only sub-group that does not display a statistically significant correlation between registration and improved policy participation, indicating that, even if they run a registered business, they do not face the same advantages as men. Additionally, although registered self-employees exhibit higher civic engagement and lower participation in informal cooperatives than their informal counterparts, these differences are not statistically significant. This may indicate that self-employees mostly rely on their networks of interpersonal relations, friends, and kinship for conducting their business (Hillenkamp et al., 2013) rather than on formal associations or informal cooperatives.

Considering the other included covariates, the results reveal that owners of registered businesses tend to have a higher level of formal education and are more likely to operate in the manufacturing or food sector. In addition, they are more likely to conduct their business in permanent constructions compared to semi-permanent or moving structures such as PKLs and street-shops. Interestingly, registration is not associated with higher revenues or larger firm size, although registered firms are shown to have better access to loans.[14] Interestingly, registration benefits women and self-employees with better access to loans (Table A.1). Thus, in line with the existing literature, the analysis suggests that the limited access to credit represents a key obstacle preventing women entrepreneurs and self-employees from engaging with the formal economy.

As already indicated, the current study suffers from several limitations. First, I had to rely on snowball sampling because the informal entrepreneurs are part of a hidden population, although I attempted sectoral stratification to achieve some level of representativeness. Second, the sample is fairly small, with the formal entrepreneurs only constituting 25% of

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[14] For the sake of brevity the results are not displayed in the main paper but in the Appendix 2, Table A.1.

the observations. Third, the empirical analysis only identifies correlations and cannot be interpreted as causal. Fourth, the geographical scope of the study is limited to the three cities in West Java where the interviews were conducted. However, these cities are population rich and identifying possible solutions for these areas and assessing these further cannot only help a large group of people but ultimately also contribute to policy making elsewhere. Overall, these findings, together with those from the literature and the qualitative results, provide important insights for policy makers.

Turning to the implications of my study for policymaking, there are numerous challenges. A way forward seems to lie in improving the benefits of registration and identifying instruments that are suitable for promoting abidance of formal rules. For instance, involving informal entrepreneurs in government projects, providing them training and access to BDS, and facilitating access to financial services could help to address the existing institutional and market gaps and create a more positive attitude among the informal entrepreneurs towards the government.

Importantly, policymakers should start a dialogue with informal entrepreneurs and self-employees, who are under-represented in the decision-making processes because they tend not to be part of trade unions and sector-specific organizations. For instance, inviting informal trade unions and representatives of informal self-employees to a round table could be a viable approach for starting a constructive dialogue necessary for designing participatory policies.

Furthermore, policy interventions targeting groups of entrepreneurs may be a suitable approach that can successfully promote business registration, since informal networks and cooperatives play a key role in the informal economy. A way forward could be to invite informal organizations and their representatives, as well as individual entrepreneurs, to discuss policies so that win-win solutions can be jointly established. Lastly, information campaigns could help foster compliance with the law and increase the social costs of non-registration. Information sessions with informal entrepreneurs and informal organizations may help address potential information failures.

7.5. Conclusions

This study empirically investigates the main characteristics of registered and unregistered firms in West Java, Indonesia. The analysis exploits a primary dataset from a survey that involved 400 entrepreneurs operating in three West Javanese cities. The analysis relies on a combination of quantitative and qualitative methods.

Consistent with the existing literature, the results from the mixed methods analysis suggest that several aspects affect the decision to formalize a firm. The most common self-reported reason for (non)registering the business are (i) necessity, (ii) expected benefits from formalization, (iii) perceived costs associated with formalization, and (iv) perceived risks of non-compliance. These different reasons underpinning the decision to register a business reveal once more the heterogeneity of the informal firms (Welter et al., 2015). Furthermore, the prevalence of entrepreneurs declaring that they decided to register the business based on perceived necessity implies an asymmetry between formal rules and socially accepted norms (Webb et al., 2009; Williams and Vorley, 2015; Williams et al., 2017).

The quantitative analysis assessing the correlates of business registration identifies increased access to government projects and civic engagement and a negative association with the participation in informal networks and cooperatives. Thus, registered firms (independently of whether registration is a result of government policy or not) acquire a higher institutional visibility and benefit from access to government programs and trade unions. This may increase the entrepreneurs' support of formal rules and administration as they feel that the government responds to their priorities and demands. At the same time, unregistered firms exploit informal cooperatives and networks to access markets and services. Importantly, these very same informal networks play an essential role in mediation with local authorities and police officers.

Given the heterogeneity of the informal firms, the paper analysed four sub-samples: (i) self-employees, (ii) non-individual companies, (iii) women, and (iv) men. The results indicate that registered non-individual companies have most access to government programs and trade unions. Furthermore, women and self-employees are particularly vulnerable even when they have a registered business, and registered self-employees do not display a systematically higher civic engagement.

In terms of policymaking, the findings suggest the need to improve the involvement of informal entrepreneurs and of specific groups such as women and self-employees. Involving enterprises may facilitate the identification of tailored policies addressing the priorities of the different groups. Additionally, considering that a strong group identity is shared by many members, a group-based approach to formalization could persuade them to change their business statue collectively. Involving leading informal actors and organizations of informal entrepreneurs (e.g. sectoral associations or cooperatives of informal entrepreneurs in specific locations) in the policy-making process can help to create a dialogue among the involved stakeholders and to find win-win solutions independent of whether these involve the formalization of enterprises.

Tables and Graphs

Table 1: List of variables

Variable	Description
Registration	Dummy variable taking the value of 1 if the business is registered
Government programs	Whether the entrepreneur has been beneficiary of business programs provided by the Local, Provincial or National government
Join Association	Whether the enterprise joined sector associations
Join Cooperative	Whether the enterprise joined cooperatives of enterprises
Bandung	Whether the firm is located in Bandung
Bogor	Whether the firm is located in Bogor
Cirebon	Whether the firm is located in Cirebon
Enumerator	Identity of the interviewer
Necessity	Dummy variable indicating whether the declared reason for registering is necessity
Cost	Dummy variable indicating whether the registration decision depends on expected costs and time of registration
Risk	Dummy variable indicating whether the declared reason for registering is the perceived risk of (non)compliance
Benefit	Dummy variable indicating whether the declared reason for registering is based on the expected benefits of registration.
Age owner	Age of the entrepreneur owner of the business
Female	Whether the main owner is a woman
Primary	Whether the owner has only primary school degree
Secondary	Whether the owner has no more than secondary school degree
High school	Whether the owner has stopped studying after taking the high school degree
University	Whether the owner has a university degree
PKL	Dummy variable indicating whether the business is a PKL
Street shop	Dummy variable indicating whether the business is a street shop
Store	Dummy variable indicating whether the business is a permanent store/building
Other type of business	Dummy variable indicating whether the business is another type of business
Online business	Whether the firm conducts (part of) the activity online
Manufacture	Whether the business operates in the manufacture sector
Garment	Whether the business operates in the garment sector
Food	Whether the business operates in the food sector
Services	Whether the business operates in the service sector
Other Sector	Whether the firm operates in other sectors
Age Firm	Age of the firm
Size (employees)	Average number of employees
Self-employee	Whether the enterprise is an individual company
Permanent workers	Number of permanent declared workers
Permanent workers no contract	Number of permanent undeclared workers
Fixed term workers	Number of fixed term declared workers
Fixed term workers no contract	Number of fixed term undeclared workers
Last Annual Turnover	Last annual turnover of the firm
Local	Whether the enterprise sell in the local and national market
International cooperation	Whether the entrepreneur has been involved in International cooperation projects
Business Development Services	Whether the entrepreneurs benefited from business development services
Loan firm	Whether the enterprise received a loan named to the firm
Microfinance	Whether the entrepreneurs had access to microfinance services

Rotatory credit system	Whether the entrepreneur is part of a rotatory credit system				
Loan Relatives	Whether the entrepreneurs receive a loan from relatives or friends				
Purchase with other firms	Whether the entrepreneur purchases products with other firms				
Sell with other firms	Whether the entrepreneur sell products with other firms				
Sell to other firms	Whether the entrepreneur sell products to other firms				

Source: Author's elaboration

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Registration	400	0.200	0.401	0	1
Necessity	377	0.526	0.500	0	1
Cost	377	0.162	0.369	0	1
Risk	377	0.117	0.322	0	1
Benefit	377	0.053	0.219	0	1
Other drivers	377	0.210	0.408	0	1
Bandung	400	0.500	0.5	0	1
Bogor	400	0.250	0.430	0	1
Cirebon	400	0.250	0.430	0	1
Enumerator	400	52825.000	2865.000	1	10
Age owner	399	37.410	1155.000	17	85
Sex	400	0.315	0.465	0	1
Primary	395	0.084	0.277	0	1
Secondary	395	0.195	0.397	0	1
High school	395	0.352	0.478	0	1
University	395	0.357	0.480	0	1
PKL	400	0.270	0.445	0	1
Street shop	400	0.275	0.447	0	1
Store	400	0.290	0.454	0	1
Other type of business	400	0.165	0.372	0	1
Online business	396	0.106	0.308	0	1
Manufacture	400	0.140	0.347	0	1
Garment	400	0.190	0.393	0	1
Food	400	0.440	0.497	0	1
Services	400	0.055	0.228	0	1
Other Sector	400	0.175	0.380	0	1
Age Firm	400	103825.000	8938453.000	0	48
Size (employees)	400	4.050	6.500	0	73
Self-employee	400	0.343	0.474	0	1
Permanent workers	397	0.297	2379.000	0	40
Permanent workers no contract	397	1702.000	4185.000	0	60
Fixed term workers	396	0.227	2198.000	0	30
Fixed term workers no contract	397	0.771	3269.000	0	45
Last Annual Turnover	360	3406.000	1231463.000	.15	20000
Local	400	0.943	0.233	0	1
Join Association	400	0.200	0.401	0	1
Join Cooperative	400	0.078	0.268	0	1
Loan firm	392	0.028	0.165	0	1
Microfinance	398	0.065	0.247	0	1
Rotatory credit system	395	0.066	0.248	0	1
International cooperation	399	0.030	0.171	0	1
Government programs	398	0.121	0.326	0	1
Business Development Services	396	0.109	0.312	0	1
Loan Relatives	399	0.028	0.016	0	1
Purchase with other firms	400	0.138	0.345	0	1
Sell with other firms	400	0.163	0.369	0	1
Sell to other firms	396	0.520	0.500	0	1

Source: Author's elaboration

Table 3: Registration by type of company

	Individual companies	Other firms	Total
Unregistered	127	193	320
Registered	10	70	80
Total	137	263	400

Source: Author's elaboration

Table 4: Registration, policy participation, and civic engagement

	(1)	(2)	(3)	(4)	(5)	(6)
Government programs	0.331***	0.251***	0.242***	0.181**	0.183**	0.254**
	(0.081)	(0.076)	(0.080)	(0.085)	(0.087)	(0.120)
Formal Association	0.220***	0.264***	0.243***	0.198***	0.178***	0.188**
	(0.061)	(0.059)	(0.054)	(0.057)	(0.059)	(0.076)
Informal Cooperatives	-0.080	-0.063	-0.119*	-0.142**	-0.161**	-0.101***
	(0.074)	(0.073)	(0.068)	(0.061)	(0.064)	(0.022)
Entrepreneur		X	X	X	X	X
Enterprise			X	X	X	X
Finance and business services				X	X	X
Interactions with other firms					X	X
Constant	0.254***	0.100	-0.291	-0.293	-0.289	
	(0.065)	(0.311)	(0.212)	(0.204)	(0.205)	
N	398	369	328	320	319	319

Note: Coefficients derived using LPM. Robust standard errors in parentheses. The dependent variable is a dummy variable indicating whether the enterprise is registered with any government institution or the Chamber of Commerce. All specifications control for location and enumerator fixed effects. Column (1) shows the coefficients associated with policy participation, civic engagement, and informal cooperative membership. Column (2) adds a set of characteristics of the entrepreneurs (motivation underpinning business registration, age of the owner, gender of the owner, education level). Column (3) adds a set of characteristics of the enterprise (age of the firm, type of activity, sector of activity, revenues, size of the firm, and type of market). Column (4) reports access to business services (BDS, international cooperation projects) and to finance (bank loans, microcredit, rotatory credit systems, credit from friends or relatives). Column (5) includes a set of variables controlling for the interactions with other firms (joint purchase with other enterprises, joint sale of products with other enterprises, and sales to other firms). Column (6) displays the marginal effects of a probit model using the full set of covariates as in Column (5).

Table 5: Results by type of company

	(1) Self-employee	(2) Company	(3) Women	(4) Men
Government programs	0.234*	0.167*	0.119	0.211**
	(0.133)	(0.099)	(0.155)	(0.105)
Formal Association	0.098	0.199***	0.294**	0.117
	(0.100)	(0.073)	(0.128)	(0.081)
Informal Cooperatives	-0.062	-0.251***	-0.209	-0.192**
	(0.104)	(0.088)	(0.141)	(0.082)
Entrepreneur	X	X	X	X
Enterprise	X	X	X	X
Business services and finance	X	X	X	X
Interactions with other firms	X	X	X	X
Constant	-0.024	-0.316	-0.617	-0.419
	(0.247)	(0.292)	(0.551)	(0.304)
N	113	206	104	215

Note: All specifications control for policy participation, civic engagement, membership in informal cooperatives, characteristics of the entrepreneurs, characteristics of the enterprise, access to business services and to finance, interactions with other firms, location and enumerator fixed effects. For details see note to Table 4. Columns (1) and (2) displays
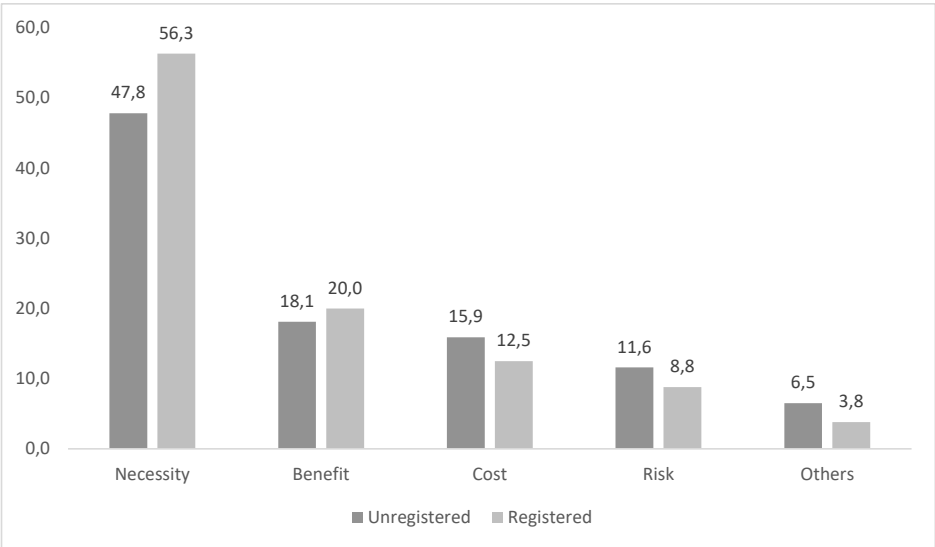
coefficients for the sub-sample of self-employees and non-individual companies, respectively. Columns (3) and (4) provides results for the sub-samples of women and men, respectively.

Graph 1. Shadow economy as percentage of GDP (1991-2017)
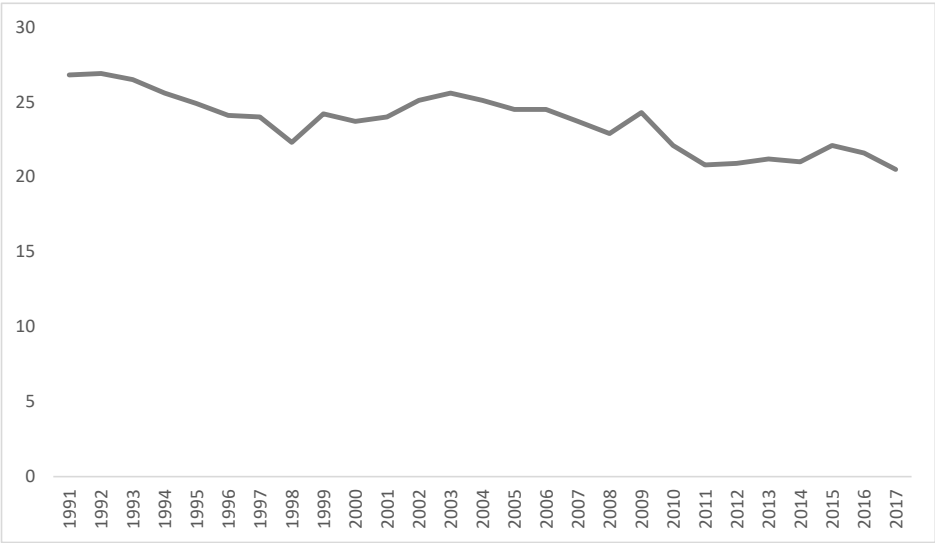
Source: Medina and Schneider (2019)

Graph 2. Self-reported reasons for (non)registration (in percentage)

Note: The values are expressed as percentage of respondents of unregistered and registered firms, respectively.

Appendix 1

The appendix discusses the most common answers provided by the survey participants and gives examples from the interviews.[15] It combines descriptive statistics with qualitative insights from the interviews conducted in the field. Overall, the findings indicate that entrepreneurs make decisions about business registration according to different types of reasons. Thus, as pointed out by Welter et al. (2015) the heterogeneity of the informal sector implies that entrepreneurs are driven by different motivations and needs.

Necessity

The majority of the respondents (210 firms, equivalent to 52.6% of the registered enterprises in the sample) reported that they registered or not based on perceived necessity. In other words, they made decisions about business registration based on whether they think that registration is needed for conducting their business activities. This decision relies on the consideration that registration is not a legal requirement for all firms but is rather viewed as one possible input to production (Levinson and Maloney, 1999: 3).

More than half of the owners of the registered enterprises (45 firms, corresponding to 56.3%) declared that they registered the business as they consider registration to be the right thing independent of whether it is compulsory or not. See, for example, Satrian's response:

"*I registered simply because this is the right thing to do. I want to conform to the official regulation no matters what other entrepreneurs around me are doing or if nobody (officers) come here*".

Satrian, who owns a small hotel in Bandung, explains that it was his intention to register the business since the early start-up stage and he stresses his desire to adhere to official regulations.

Interestingly, 6 of the 45 firms that registered based on perceived necessity are not obliged to register. Nonetheless, the owners deliberately decided to comply with the official law, as they believe that it will be needed in the future or because they mistakenly think that they should be registered.

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[15] The paper uses pseudonyms for the respondents to protect their identities.

At the same time, many of the owners of unregistered firms (153 firms, corresponding to 47.8% of the unregistered firms in the sample) did not register the business as they believe that they do not need any registration for conducting their activities.

For instance, Adika, the owner of a PKL selling milk, gave me a surprised look when I asked about registration and explained the reasons for his choice of non-registering:

> *"I did not register the business because there is no need of doing so. Honestly I do not even know what it would be for."*

However, 93 of the 153 unregistered entrepreneurs (60% of the 153 firms) should have been registered as they are owners of non-individual companies (see Regulation of the Minister of Trade number 36 of 2007, art. 4).

Two main implications can be drawn so far. First, in line with seminal work by Feige (1997) and Williams et al. (2015), I observe that institutional asymmetry can explain the decision of those entrepreneurs who decide to register their business regardless of costs, risks, and benefits. Those entrepreneurs who conceive business registration as necessary are more aligned with formal institutions. On the other hand, entrepreneurs who believe business registration is unnecessary tend to be more aligned with informal institutions.

Second, the entrepreneurs who mistakenly believe that registration is not necessary seem to be subject to information failure: many entrepreneurs may simply not have enough knowledge about the regulations and the registration system. As noted by McKenzie and Sakho (2010: 18-19) having information about business registration systems can encourage entrepreneurs to register their business. However, entrepreneurs in developing countries can miss this information, or have wrong, outdated or conflicting information.

Benefits

Another answer commonly provided by the respondents concerns the expected benefits associated with registration. As Maloney (2004) and Perry et al. (2007) stress, entrepreneurs opt to formalize only when benefits outweigh the costs of registration. In line with their framework, advantages of formality are compared with advantages of informality by 5.6% of the entrepreneurs interviewed in the survey. Interestingly, more than 18% of the owners of registered firms declared that they decided to register for the expected advantages, such as increasing profits, improving access to loans and to other BDS. In contrast, only 1.7% of the

interviewed informal entrepreneurs opted not to register due to low expected benefits of registration. In other words, on average, informal entrepreneurs do not consider the potential benefits of formalization when making decisions about registration.

For instance, Riko, a young man who sells *sate* (meat cooked on a spit) in a PKL situated close to Jalan Gede Bage, in Bandung, stated:

> *"If I register the enterprise, I would not gain any benefits from it. I would like to upgrade the business, but I need capital to invest; but all banks that I reached out to asked me for private collateral. Getting a registration would not help me to obtain the loan."*

Another entrepreneur, Gustav, is a young self-employee who works as photographer for weddings and other events. He stressed the advantages of being unregistered:

> *"I started the activities only two years ago; staying informal allows me to be more flexible"*,

On the other hand, formal entrepreneurs opted to register their business because they expect high benefits and gain from it. For example, Rahman is an experienced entrepreneur who runs a mochi ice-cream store factory. When discussing why he registered the business, he smiled at me and said:

> *"The only reason why I registered my business is that I wanted to obtain loans from the bank and being eligible for public grants."*

Risks

Some entrepreneurs declared that the decision about business registration relies on the perceived risks associated with non-compliance. This perception has also been discussed in the literature. Several scholars (Farrell, 2004, 2006; Baily et al., 2006; Loayza, 2007; De Giorgi et al., 2017) argue that actual and perceived levels of enforcement are the main determinants of business formalization. For instance, low level of enforcement encourages firms to stay informal. In line with this view, 11.6% of the respondents declared that they registered because of the high risk of operating without registration. In turn, those who did not register (often?) explain their decision in terms of the low risk of being detected and penalized.

When I inquired about the reason for not having registered, Rizah, the owner of a food street shop selling *martabak telur* (popular savoury treats, similar to stuffed omelettes) in the center of Bandung, replied smilingly:

> *"I never received any visit nor any warning by an officer. Usually police officers come here for eating a good martabak. There is no chance that I can be punished for not complying [to the rules]."*

On the contrary, owners of registered businesses fear the consequences of not complying with the law. For instance, the face of Adi, the owner of a small hotel situated close to Jalan Champelas street in Bandung, became suddenly serious when we started talking about the reasons underlying his choice of registering the business:

> *"I cannot afford any trouble with the police or with any other authority. If they (the police or inspectors) find out that I am not complying with the law, I risk to close down the business. This would be deleterious for me, as I invested all my savings in this activity".*

Thus, I conclude from my observations that, far from being an unregulated space, the informal sector represents a constrained environment where unregistered firms operate. Informal entrepreneurs have to face costs such as bribes to officers and fees to groups of informal entrepreneurs who occupy a square or the side of a street, so that they are able to join them and operate in the same space. Similarly, there are informal tolls to local criminals for occupying a certain space in a street.

Costs

A further common rationale underpinning the respondents' decision is the perceived costs and time of registration. This is in line with De Soto (1990, 2003), who argued that high costs of registration prevent firms from entering the formal sector. Consistent with this view, 16.2% of the interviewed entrepreneurs declared that they have chosen whether to register or not based on the costs and time of registration.

When talking about his choice not to register the business, Charlie, a young self-employed craftsman, who sells small artefacts, explained:

"I cannot afford to go through all the registration procedures. I have to stay in the store and take care of the business. Additionally, I have a side job and I do not really have time for taking care of the bureaucratic steps that I have to take."

Other entrepreneurs are worried about the ensuing costs of formalization, such as tax payments or social security schemes. For instance, Jane, the owner of a micro, online business that sells handmade clothes, shared her concern about having to pay taxes in the future:

"If I register my business today, who can ensure me that tomorrow I won't have to face extra costs due to changes in the legal framework. For instance, if the government decides to introduce a new tax for the businesses, I will have to pay extra-costs."

The registration process is seen as a potential instrument of the government for controlling the business and taxing the activities. Budi, who is a *bubur ayam* (chicken porridge) seller explained during a FGDs:

"Local government officers came only one time and offered us a one-day training for improving our entrepreneurial skills. We need more capital to invest and loans; we do not need training; we already know how to run our activities. The government did not give us anything; did not help us; and it is completely absent. They (government officers) would show up only for taxing us, collecting some revenues or getting something from us"

It is worth noting that Budi plays a crucial role in a group of street vendors, as he is the president and mediator with the authorities. Thus, his lack of trust in authorities is likely to be passed on to others.

On the other hand, Riska said:

"I decided to register the business because it is free of costs for my enterprise. In addition, it took only some days to get all the procedures done and to finally obtain my registration number".

Other reasons for (not) registering

Some entrepreneurs answered that they did not think about the reason why they opted for registering their business. A small group of owners of registered businesses said that the

previous owner registered the business. Among the registered entrepreneurs some stressed their willingness to contribute to the local community. When asked about the reason for registering, Asep, the owner of a successful chain of four restaurants situated in Bandung, who had started as door-to-door informal seller and registered after upgrading the activity and opening a restaurant, proudly answered:

> *I wanted to register because I would like to contribute to the local economy. I was very lucky. I received a lot from the Government and now I want to contribute to the welfare of the society."*

Non-registered entrepreneurs provided explanation such as "*it is too early to think about registering, given that I started up in the past months*". Others simple blamed their lack of knowledge:

> "*I never thought about it before.*"

or

> "*I am not aware of the regulations for business registration.*"

Thus, the views and reasons in favor of or against business registration are manifold and often conflicting, depending on personal experiences and life histories but also on the perceived level of enforcement.

Tables and Graphs

Table A.1: Full results

	(1) All	(2) Probit	(3) Self-employee	(4) Company	(5) Women	(6) Men
Policy participation, civic engagement, and informal networks						
Government programs	0.183**	0.254**	0.234*	0.167*	0.119	0.211**
	(0.087)	(0.120)	(0.133)	(0.099)	(0.155)	(0.105)
Join association	0.178***	0.188**	0.098	0.199***	0.294**	0.117
	(0.059)	(0.076)	(0.100)	(0.073)	(0.128)	(0.081)
Join Cooperative	-0.161**	-0.101***	-0.062	-0.251***	-0.209	-0.192**
	(0.064)	(0.022)	(0.104)	(0.088)	(0.141)	(0.082)
Entrepreneur						
Necessity	0.018	0.027	0.129*	-0.040	-0.007	0.015
	(0.050)	(0.045)	(0.072)	(0.080)	(0.132)	(0.061)
Cost	-0.053	-0.073**	0.064	-0.096	-0.117	-0.020
	(0.062)	(0.031)	(0.056)	(0.089)	(0.183)	(0.079)
Risk	-0.055	-0.040	0.084	-0.121	-0.245*	0.043
	(0.060)	(0.034)	(0.085)	(0.095)	(0.134)	(0.086)
Benefit	-0.012	0.032	0.018	-0.047	-0.184	0.031
	(0.067)	(0.065)	(0.078)	(0.104)	(0.162)	(0.081)
Age owner	0.003	0.003*	0.002	0.003	0.007	0.002
	(0.002)	(0.002)	(0.002)	(0.003)	(0.008)	(0.002)
Woman	0.020	0.013	-0.021	0.013		
	(0.042)	(0.036)	(0.042)	(0.062)		
Primary	0.054	0.850***	0.107	0.099	0.246	0.123
	(0.065)	(0.092)	(0.072)	(0.153)	(0.180)	(0.107)
Secondary	0.146**	0.915***	0.129	0.115	0.219	0.239**
	(0.059)	(0.056)	(0.084)	(0.124)	(0.248)	(0.114)
Highschool	0.243***	0.900***	0.158*	0.369**	0.380	0.323**
	(0.072)	(0.050)	(0.080)	(0.151)	(0.327)	(0.130)
University	0.270***	0.933***	0.201*	0.347**	0.417	0.338***
	(0.076)	(0.043)	(0.109)	(0.152)	(0.355)	(0.128)
Enterprise						
PKL	-0.037	-0.006	-0.018	-0.136	-0.007	-0.029
	(0.088)	(0.085)	(0.070)	(0.142)	(0.140)	(0.125)
Streetshop	-0.055	-0.037	0.118	-0.169	0.038	-0.114
	(0.079)	(0.063)	(0.080)	(0.123)	(0.138)	(0.119)
Store	0.200**	0.312**	0.535***	0.060	0.243*	0.178
	(0.081)	(0.134)	(0.156)	(0.117)	(0.133)	(0.126)
Manufacture	0.203**	0.347**	-0.083	0.297***	0.208	0.169
	(0.081)	(0.138)	(0.055)	(0.113)	(0.184)	(0.103)
Garment	-0.003	0.009	-0.036	-0.035	0.020	-0.013
	(0.057)	(0.066)	(0.066)	(0.073)	(0.111)	(0.073)
Food	0.166***	0.285***	0.050	0.255***	0.113	0.175**
	(0.058)	(0.094)	(0.061)	(0.090)	(0.090)	(0.079)
Services	0.045	0.191	-0.024	0.142	0.039	0.089
	(0.105)	(0.205)	(0.076)	(0.185)	(0.221)	(0.130)
Age firm	0.005**	0.005***	-0.002	0.007*	0.004	0.007*
	(0.003)	(0.002)	(0.003)	(0.004)	(0.006)	(0.004)
Firm size	-0.004	-0.009		-0.013	0.007	0.002
	(0.016)	(0.010)		(0.019)	(0.038)	(0.023)
Permanent workers	0.000	0.008		0.003	-0.008	-0.004
	(0.018)	(0.011)		(0.021)	(0.047)	(0.024)

	(1)	(2)	(3)	(4)	(5)	(6)
Permanent undeclared workers	0.014	0.010		0.014	0.026	0.011
	(0.017)	(0.009)		(0.020)	(0.048)	(0.019)
Fixed term workers	0.026	0.023**		0.028	0.000	0.019
	(0.020)	(0.011)		(0.022)	(.)	(0.025)
Fixed term undeclared workers	0.006	0.008		0.015	-0.005	0.001
	(0.022)	(0.014)		(0.025)	(0.050)	(0.027)
Self-employee	-0.025	-0.056			0.131	-0.045
	(0.047)	(0.041)			(0.129)	(0.060)
Last annual turnover	-0.023	-0.027**	-0.042	-0.012	-0.020	-0.019
	(0.018)	(0.012)	(0.037)	(0.024)	(0.041)	(0.025)
Local	-0.038	-0.113	-0.008	-0.023	0.037	0.031
	(0.124)	(0.132)	(0.209)	(0.123)	(0.149)	(0.160)
Business services and finance						
International cooperation	0.271**	0.793***	0.000	0.264**	0.213	0.434**
	(0.127)	(0.159)	(.)	(0.129)	(0.162)	(0.172)
BDS	0.133	0.079	-0.306**	0.202*	0.286*	0.017
	(0.095)	(0.087)	(0.131)	(0.104)	(0.168)	(0.122)
Loan firm	0.343*	0.259	0.805***	0.257	0.647*	0.152
	(0.194)	(0.212)	(0.241)	(0.211)	(0.336)	(0.260)
Microfinance	-0.056	-0.003	0.030	-0.066	-0.130	0.030
	(0.085)	(0.062)	(0.099)	(0.111)	(0.108)	(0.108)
Rotatory credit system	0.064	0.057	-0.171*	0.103	0.031	0.017
	(0.064)	(0.075)	(0.097)	(0.090)	(0.164)	(0.092)
Loan Relatives	-0.004	-0.056	-0.239	-0.062	-0.070	0.133
	(0.097)	(0.039)	(0.256)	(0.132)	(0.162)	(0.143)
Interaction with other firms						
Joint purchase with other firms	-0.070	-0.068**	-0.122**	-0.060	-0.034	-0.044
	(0.074)	(0.031)	(0.059)	(0.090)	(0.166)	(0.092)
Joint sales with other firms	0.102	0.140	-0.147**	0.210**	0.159	0.062
	(0.077)	(0.088)	(0.064)	(0.103)	(0.187)	(0.092)
Sales to other firms	-0.038	-0.045	0.006	-0.077	-0.073	-0.006
	(0.046)	(0.043)	(0.052)	(0.061)	(0.092)	(0.060)
Bogor	0.014	0.066	0.105	0.045	0.295	-0.055
	(0.083)	(0.111)	(0.076)	(0.129)	(0.216)	(0.105)
Cirebon	0.021	0.121	0.033	0.122	0.291	0.050
	(0.117)	(0.165)	(0.149)	(0.184)	(0.340)	(0.148)
Enumerator	0.005	-0.005	-0.027	-0.003	-0.036	0.006
	(0.017)	(0.017)	(0.022)	(0.026)	(0.038)	(0.023)
Constant	-0.289		-0.024	-0.316	-0.617	-0.419
	(0.205)		(0.247)	(0.292)	(0.551)	(0.304)
N	319	319	113	206	104	215

Note: All specifications control for policy participation, civic engagement, membership in informal cooperatives, characteristics of the entrepreneurs, characteristics of the enterprise, access to business services and to finance, interactions with other firms, location and enumerator fixed effects. For details see note to Table 4. Columns (1) displays estimates for the full sample using LPM. Columns(2) provides marginal effects from a probit model for the full sample. Columns (3) and (4) display coefficient estimates from LPM for the sub-sample of self-employees and non-individual companies, respectively. Columns (5) and (6) provide results of LPM for the sub-sample of women business owners and men business owners, respectively.

8. Trans-formal firms – a neglected category operating in the borderland between formality and informality

Abstract

Most firms in developing countries operate without business licenses, belonging to the category of informal entrepreneur. This article outlines a new approach to firm classification that is different from both 'dichotomist' and 'continuum' formality models. The approach adopts a new heuristic based on the notion of a *borderland* as a space of interaction between dimensions of formality. It thus creates an umbrella category of *trans-formal firms*, which are neither purely formal nor informal. Three formality dimensions are considered: (i) registration of the firm, (ii) existence of a bank account in the name of the firm, and the (iii) presence of an official balance sheet. After elucidating the new approach, the paper assesses the analytical capacity of the approach with data about 4,768 firms operating in 19 countries according to the World Bank Informal Enterprises Survey. The majority of the considered firms are found to be trans-formal, moving in a space of decision-making captured by the new, broadened notion of borderland, showing that policies aiming at formalization processes are likely to misrepresent the realities of a significant number of firms.

Keywords: Institutional economics of the firm, informal economy, borderland, trans-formal firms.

8.1. Introduction

Over the past years, the dichotomy contraposing informal enterprises to formal firms has been increasingly questioned (Berner et al., 2012; Grimm et al., 2012; Floridi et al., 2016; Williams et al, 2016). Informal enterprises are defined as the basic production units of the informal sector, which represents the set of economic activities that take place outside any official legal framework. Typically, informal firms are classified according to a dichotomy defining them as opposite to formal firms (Cross, 2000). For instance, many authors describe them as traditional activities, in opposition to modern formal firms. Yet other scholars depict them as survival or marginal firms that are likely to be displaced by larger formal firms in time (La Porta and Shleifer, 2008; 2014), or they portray them as parasites that unfairly compete with formal firms by cutting the costs of regulation (Farrell, 2004; 2006; Baily et al., 2006).

Firms labelled as informal are frequently seen as suffering from agency deficit and in need of assistance. Such firms are considered incapable of escaping a low level equilibrium trap without external encouragement and help. The key to unlock the door of the trap is a subject of much debate over the form and quantity of help needed and the role of firm development and entrepreneurship for economic growth (USAID, 2005; OECD, 2007; African Development Bank, 2011; Schneider et al., 2010). This contrasts with the view of formal firms displaying rational, well-informed, autonomous decision-making, albeit constrained by market forces and competition (Maloney, 2004).

One related issue with the formal/informal dichotomy is that informal enterprises are often described as mere opposite to the formal firms. Cross (2000) uses the term *formalomorphism* to refer to the tendency to define informal as opposite to formal. Formalomorphism is similar to the notion of orientalism elaborated by Said (1978) for describing the view of the Orient as a monolithic entity opposite to West. Two features of the formal/informal discussion resemble orientalism: first, the inclination to defining informal as opposite to formal is similar to that of defining East as opposite to West. Second, the understanding of the informal sector as a homogeneous entity is similar to the depiction of East as a monolith.

Another issue with the formal/informal dichotomy is the hierarchy underpinning the two terms (Williams and Round, 2009). Informal enterprises are often seen as residual or marginal, characterized by low capital intensity, lower productivity, and run by less educated entrepreneurs. This tendency reflects the typical dualistic process of thinking described by Derrida (1967).

The formal-informal dichotomy has been used to design and implement policies promoting formalization across the globe (Portes, 1994; Sindzingre 2006). Formalization is considered desirable because it is associated with economic growth, particularly with increased employment, higher labour productivity and improved labour conditions (International Labour Organization, 2002 and 2007 and 2015; USAID 2005; OECD 2007, Andrews et al. 2011; International Labour Organization and WIEGO, 2013; Gatti et al., 2014). However, despite the efforts to promote the formalization of informal enterprises, the available evidence suggests that interventions have had limited effects on firms' formalization decisions (Floridi et al., 2020).

This paper aims to overcome the formal-informal separation by introducing a new economic approach based on the notion of a substantial borderland economy and large numbers of trans-formal firms. The borderland economy is defined the space of interaction between the formal and informal economy, and trans-formal firms refers as an umbrella category representing the set of firms which are neither purely formal nor purely informal.

The dichotomist approach to informality has already been questioned. Other authors have introduced the idea of an interlinked informal and formal economy (Guha-Khasnobis et al. 2007, Chen 2005, Sindzingre 2006). Recent empirical evidence also emphasizes that informal and formal firms are interlinked (Böhme and Thiele 2014). In particular, Bellanca (2008) suggests that a significant number of economic activities operate in a border space between formal and informal, known as the borderland.

To date, few authors have focused on the heterogeneity of informal firms: Davis (2006) suggests the existence of an informal 'petty bourgeoisie' next to a wider 'informal proletariat'. Similarly, Portes and Haller (2010), Berner et al. (2012), Grimm et al. (2012) and Williams and Shahid (2016) identified firm heterogeneity in the informal sector. In line with these authors, we focus on the heterogeneity within the group of firms labelled informal. We further question earlier work and suggest that the informal sector is far from being only a disadvantaged residual of segmented markets (Maloney, 2004).

This paper offers a critical examination of the dichotomous representation of formal and informal firms and further develops the framework presented in the 2002 ILO report. The 2002 report provided a new definition of informal economy as interaction between the informal and formal economy, outlining a model where economic activities move from the informal to the formal along a continuum, rather than acting independently in two separate spheres. Nonetheless, the report maintains the dichotomy between formal and informal, with the latter being defined as the set of unincorporated enterprises for which financial accounts are not kept.

We start by developing the concept of a borderland as a *space of ambiguity* between formality and informality. We then suggest that the borderland implies the existence of several degrees of formality, and that agents can simultaneously engage with formality and informality. Thus, the borderland identifies a new category of firms, which are not purely formal or purely informal: the trans-formal firms.

Firms were classified based on three formality criteria: a) the legal status of a firm, b) whether it has a bank account, and c) whether it can provide a financial account separate from the household account. These three criteria are derived from the definition of informal enterprises suggested by the International Conference of Labour Statisticians (ICLS) in 1993 (ILO, 1993) and the 2002 ILO report (see ILO, 2002).

The heuristic capability of the new approach and its assumptions is assessed with data from the World Bank Informal Enterprise Survey (WBIES) concerning 4,768 firms operating in 19 different developing counties. After assessing the prominence of trans-formal firms among the studied firms, we empirically investigated the characteristics of trans-formal enterprises employing multivariate regression techniques.

The remainder of the paper is organized as follows. Section 2 introduces the recent academic debate on the informal economy. This is followed by a discussion of the borderland economy and trans-formal firms in section 3. In section 4, the concept of trans-formal firms is tested by classifying enterprises from 19 countries according to the new metric. Section 5 concludes with a discussion of the implications of the new approach.

8.2. A brief history of the academic debate

This section briefly outlines the history of the academic debate. The first stage of the debate about the informal economy was characterized by the dichotomist view. Despite some variety of positions and approaches, the common tendency was to differentiate between formal and informal economic sectors and actors.

The distinction relies on a *dualist* approach differentiating a 'modern' formal sector from a 'traditional' informal sector. This dualist approach is rooted in the anthropological model of Boeke (1953)[16] and the economic model of Lewis (1954)[17] and argues that the informal sector is a set of inefficient activities likely to disappear over time through a process of modernization.

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[16] The Dutch anthropologist Boeke developed a dual model of the economy, constituted by a market economy and a lay economy (Boeke 1953).
[17] Lewis' (1954) influential two-sector model of development distinguishes between modern capitalist firms that maximize profit, and a traditional sector that is comprised of peasant households where the rules for sharing output are different from the modern sector.

More recently, dualist authors had defined the informal economy as characterized by low levels of capital accumulation, low levels of human capital, low productivity and product quality, and lack of labour protection (Porta and Shleifer, 2008 and 2014; USAID, 2005). Other scholars maintain the distinction between formal and informal economy, presenting the latter as the outcome of excessive regulation costs (De Soto, 1990 and 2003), low levels of enforcement (Farrell, 2004 and 2006) or small benefits of formalization (Maloney, 2004; Perry et al., 2007). The informal economy is therefore often represented as an unregulated space; the links between the formal and informal economy are sporadic and the informal firms often compete unfairly with the more efficient and more productive formal firms by cutting the costs of regulation. Thus, informal entrepreneurs are often depicted as either owners of survival activities or as sly dogs avoiding taxation.

Challenging the first 'family' of dichotomised approaches to the informal economy, scholars have begun to question the formal/informal dichotomy over the past years. Structuralist authors have already pointed out that the informal economy is heterogeneous as it involves both traditional and modern activities characterized by the absence of a clear separation between capital and labour, the lack of formal contractual relations between employers and employees and non-binding, vague payment arrangements (Portes and Sassen-Koob, 1987; Portes et al., 1989). In a similar vein, House (1984) argued that the urban informal sector is a varied and heterogeneous set of activities characterized by many different levels of income.

The increased agreement on the heterogeneity of the informal sector culminated in the adoption of a new definition of informal economy by the ILO in 2002. The new definition includes the informal sector, informal employment within the informal sector, and informal employment within the formal sector (ILO, 2002). In this new framework, referred to as the *continuum model*, the dichotomist logic is partially left behind: the economic system is presented as a continuum of economic activities having different degrees of formality and characterized by frequent interactions between the formal and informal economy (Chen et al. 2002; Chen 2005; ILO and WIEGO 2013; Sindzingre, 2006; Guha-Khasnobis et al., 2007; Tijdens et al., 2015). Despite the innovative elements of the continuum model, the formal-informal interactions are reduced to a matter of employment relations, which is understandable in the context of the ILO mandate. More importantly, the approach is still rooted within the dichotomist contraposition between formal and informal firms introduced by the ICLS of 1993 (ILO, 1993).

Scholars have further proposed two main features of the continuum model: (i) the interactions between the formal and informal economy; and (ii) the heterogeneity of the informal enterprises. The continuum model assumes that the formal and informal economy are not isolated from each other as they interact and exchange. For instance, informal employment can take place also in the formal sector (Chen, 2002). However, the interactions are not only limited to employment relations, as formal firms can outsource part of the production to formal firms (Guha-Kasnobis et al., 2007). Institutionalist contributions have further explored the interactions between formal and informal institutions highlighting that the two spheres are not isolated. For instance, Helmke and Letivsky (2006) identify four types of interactions between formal and informal institutions and emphasize the complexity of those interactions. An increasingly popular view suggests that the institutional asymmetry, that is, the gap between formal and informal institutions, affects economic outcomes and strategic decisions. For instance, non-compliant behaviours, including informal activities, proliferate when formal rules and socially accepted norms are not aligned (Feige, 1997; Gërxhani, 2004; Williams et al., 2015).

Concerning the heterogeneity of the informal sector, scholars have adopted a range of strategies to questioning the formal/informal dichotomy. One strategy consists in identifying features that are common to both sectors. For instance, both formal and informal activities can be run by male or female entrepreneurs; adult and minor workers can be hired in both sectors, activities can take place in rural as well as urban areas, and they can be capital intensive or labor intensive independently of the sector sector in which they take place (Bellanca, 2008). Thus, the contraposition between informal, survival, traditional, and rural activities and formal growth-oriented, modern, and urban enterprises has become obsolete and can be misleading.

A second strategy to challenge the dichotomy is to question the homogeneity of the informal sector and identify various types of informal enterprises. For instance, Portes and Haller (2010) suggested there are three kinds of informal activities: survival, dependent exploitation, and growth. Similarly, Berner et al. (2012) and Grimm et al. (2012) identify, respectively, two and three types of informal enterprises. Thus, the presence of informal yet highly productive firms challenges the hierarchical contraposition between highly productive formal firms and less productive informal firms.

Recently, scholars have explored the ambiguity of the concept of informality and argued that there are several dimensions of informality (Williams and Shahid, 2016; Floridi et al., 2016). Williams and Shahid (2016) used three criteria adopted by the ILO to identify four groups of firms: wholly formal, partially formal, partially informal, and wholly informal. Similarly, Floridi et al. (2016) proposed the notion of trans-formal firms to describe hybrid firms that are neither purely formal nor purely informal and operate in a space of ambiguity between formality and informality. Thus, this approach exploits the existence of several degrees of formality for identifying additional categories that break the dichotomy.

Although the continuum model highlights the heterogeneity of the informal sector, the approach maintains the dichotomist contraposition between formality and informality. To overcome such issue, this paper deconstructs the notion of (in)formal economy and informal firms and proposes a new framework. Derrida's deconstruction method, which consists of adding at least one term to break the dialectic, is applied (Williams and Round, 2013). The suggested approach highlights the need to recognize the existence and economic scope of a significant number of heterogeneous firms instead of focusing on the borderline that separates formal and informal. Central to the new approach is the notion of borderland and trans-formal firms, introduced and discussed in the next section.

8.3. Theorizing the borderland economy with trans-formal firms

In an attempt to recognize the economic scope of many micro, small and medium enterprises, the notion of a borderland economy is proposed. The borderland is the space of institutional ambiguity between formal and informal dimensions of the economy. This approach can be seen as a radical development of the continuum model, extended to the institutional framework and to the notion of informal enterprises.

The institutional environment is characterized by a spectrum of institutions that vary from informal to formal. Thus, that the existence of an institutional continuum cannot be denied. The borderland constitutes the space of overlap between formal and informal institutions. In this borderland space, firms make decisions about their degree of formality and their engagement with both the formal and informal economy. The resulting picture is an economic system characterized by three interrelated spheres, which are the informal economy, the formal economy, and the borderland (Figure 1). The three spheres represent

different decision-making contexts, which widens the institutional theory to include a socio-economic model with its own dynamics.

[Figure 1]

The core assumption underpinning the notion of borderland is the possibility that agents can simultaneously engage with both formal and informal institutions, and thus represent a space of institutional ambiguity. This assumption is developed on the basis of the definition of the informal economy as introduced by ILO (2002), which includes informal employment in the formal sector. When registered enterprises hire informal workers they are simultaneously engaging with formal institutions (registered) and informal institutions (undeclared or under-declared work). Another example comes from informal enterprises that pay taxes via identifiable grouping taxation (Carroll, 2011; Joshi et al., 2013 and 2014; Dube and Casale, 2016).

Institutions are a particular type of structure that form the ground for social life (Hodgson, 2006). They are systems of established and embedded social rules that structure social interactions. These rules are socially transmitted and include customary normative injunctions or immanently normative dispositions. Agents are not passive players, agency and structure mutually interact in a cyclical process known as the structuration process (Giddens, 1984). On the one hand, institutions shape agents' behaviours; on the other hand, agents can change and create new institutions to replace old ones. The tension between agency and structure gives place to a loop that can be shifted by what Hodgson (2002) calls re-constitutive upward causation and re-constitutive downward causation. According to a popular metaphor employed by North (1990), institutions are the rules of the game. North (1990) distinguishes between formal institutions (written rule) and informal institutions (social norms). Institutions consist of the set of formal rules and informal norms that regulate the society and the economy (North, 1990). Whilst formal institutions are officially codified laws, informal institutions are socially shared, unwritten norms.

The difference between formal and informal institutions has also been formulated in terms of enforcement mechanisms (Tuomela, 1995 and 2003). Tuomela and Tuomela (2020) draw a distinction between rules and norms based on the different enforcement mechanisms on which they rely. Rules imply the existence of a sanction implemented by an authority that implements the agreement. Conversely, norms are driven by reciprocating intentions and

expectations and rely on (dis)approval by members of a group. Those groups are created via processes of collective identification or dis-identification with formally institutionalized practices. A strong collective identity driven by a process of dis-identification facilitates the proliferation of informal activities (Webb et al., 2009).

Other scholars describe the formal/informal dichotomy in terms of legality vis-à-vis legitimacy (Webb et al., 2009). Whilst formal institutions control what is legal and illegal, informal institutions control what is socially accepted and not (Webb et al, 2009). Activities deemed illegal by formal institutions may be socially accepted and thus seen as legitimate. Thus, it is the inconsistence between formal and informal institutions that defines the institutional asymmetry which explains non-compliant behaviours such as informal activities (Feige, 1997; Gërxhani, 2004; Williams et al., 2015). Informal institutions are not only competing and substitutive, they can also be complementary or accommodating (Helmke and Letivsky, 2004).

Concerning the impetus of the firms as agents, we subscribe to Polanyi and Pearson's (1977) view that the dominant motivation of decision-makers in every economic system is to satisfy *material* needs. Thus, the decisions made by the economic actors in the borderland are in first place needs based (dominant in informal sector activities), but also reflect the cultural, economic and political conditions of their specific context (marginal for formal sector firms). The borderland emerges partially as a response to institutional regulatory barriers and opportunities. The economic activities in the borderland are not only need-based and context-adapted but also reflect demands that may be frustrated by following formal regulatory requirements. The firms acting in the borderland are prolific, they expand if opportunities arise and are therefore far from survivalist activities. The economic activities and exchanges in the borderland result in the creation of an institutional environment that sustains the firms working in it.

The borderland constitutes a space for interactions between firms with different degrees of formality embedded within a net of formal and informal institutional arrangements. The concept of embeddedness highlights that firm's activities and decisions are rooted in the prevalent socio-cultural system. In this regard, Portes and Haller (2010) stress that the informal economy is not only driven by market forces but also social institutions different from official state institutions. In a similar vein, substantivist (or Polanyian) approaches

identify the existence of at least four principles of economic integration: market, reciprocity, redistribution, and house-holding (Hillenkamp et al., 2013).

The institutions in which the borderland economy is embedded are not static. Firms' decisions depend on cultural values as well as economic assets and both may change over time (Basile 2013). Institutional changes can occur via downward or upward re-constitutive causation processes, which means that agents are not passive actors but are endowed with agency and at least minimal freedom of movement within the institutional environment (Hodgson, 2002). Firms moving in the borderland opt for a specific trans-formal nature based on their perception of strengths and vulnerabilities at a given time. Therefore, they are not bound to a rigid position in the borderland space and may become more formal or informal depending on contextual changes. If firms can opt for formalization, it can also happen that they engage in a process of in-formalization whereby they exit the formal economy and enter the informal economy. An example of in-formalization is the de-registration of enterprises that keep on operating without registration after exiting the formal market, or when entrepreneurs fail to renew their business license as documented by Galiani et al. (2017). Other entrepreneurs may change the contractual relations of workers, hiring workers either totally (undeclared employment) or partially (underdeclared employment) without any formal contract. For instance, in Mexico, enterprises decreased the number of workers with contracts and started hiring informal employees due to the increasing costs of formal labour (De la Parra et al., 2020).

Importantly, formal and informal institutions are not mutually exclusive; agents can simultaneously engage with both at various levels. This is the case of formal entrepreneurs engaging with informality, for instance, by hiring informal employees. Informal entrepreneurs can also engage with the formal economy; this is the case when unincorporated enterprises pay taxes. Thus, the borderland implies the existence of several degrees of (in)formality that we connect to three spaces of decision-making, namely those of formal, trans-formal and informal firms. The introduction of the concept of trans-formal firms is a further necessary step to overcome the dichotomist logic.

8.3.1. Deconstructing and rethinking the firm's informality: trans-formal firms

As operational definition for classifying firms as formal, trans-formal or informal, the following three criteria are taken into account: (i) registration of the enterprise, (ii) existence

of a bank account in the name of the enterprise, and (iii) the presence of an official balance sheet. The different combinations of criteria allow us to identify three categories of firms: formal firms, trans-formal firms and informal firms. The formal firms are those firms satisfying all three adopted criteria; the informal firms are those who do not satisfy any of the three criteria. What characterizes the borderland and the trans-formal firms acting in it? Firms in the borderland choose different degrees of formality. The trans-formal firms are those firms which satisfy only one or two of the adopted criteria; for instance, a firm is registered but does not have any official balance sheet or bank account. Hence, trans-formal firms in the borderland are those firms which are not purely formal or purely informal.

As briefly discussed, a main concern with the definition of the informal economy adopted by ILO 2002 is that the dichotomist contraposition between formal and informal firms is maintained. Informal firms were defined as the basic static units of the informal sector based by the 15th International Conference of Labour Statisticians (ICLS) in 1993. The classification follows a residual approach, it defines informal enterprises as opposite of what formal firms are. According to the definition provided by ICLS 1993, informal enterprises are unincorporated units of production that do not have financial accounts and are too small to keep accounts. Thus, informal firms are classified based on criteria that distinguish them from other entrepreneurial forms. Informal units of production are unincorporated enterprises that are unregistered, meaning that the activity is not established as a legal one. In other words, informal firms are household enterprises that do not keep financial accounts.

Starting from this definition, three criteria were identified for de-constructing the dichotomist notion of informal firms and deriving the new definition of trans-formal firms: business registration, bank account, and account separate from the household. According to the legalist notion of formality, informal enterprises are those firms that are not registered under any legal form. However, Farazi (2014) shows that business registration without a bank account is of limited significance. Accordingly, conceiving registered firms as formal may be paradoxical if they do not have any bank account in the name of the enterprise to use for transactions and payments. Such registered firms without a bank account are likely to conduct informal activities and engage in informal cash-in-hand transactions despite their formal registration. The absence of a bank account in the name of the firm makes it difficult to obtain loans from banks, pushing the entrepreneurs to move through informal institutions such as

credit from relatives and friends, credit on supplies, rotating credit systems, and, of course, moneylenders.

Registered firms not providing official balance sheets are also likely to move through informal paths even if they are considered formal according to the legalist notion of formality. If there is no balance sheet, registered firms may conduct part of their activities outside the formal legal framework. For instance, some registered enterprises may not separate the financial account from the household, or they may have more than one financial account. Conversely, unregistered firms that maintain official balance sheets are very likely to conduct transparent management of the business. Thus, it is rather the presence of an official balance sheet than formal registration that allows to assess whether the economic and employment relations tend to be formal or informal. Importantly, unregistered firms that have a financial account separate from the household are more likely to belong to the upper-tier group of market-oriented firms and less likely to engage only in survival activities.

Informal firms are those firms that are not registered, do not have a bank account, or a financial account separate from the household. Conversely, trans-formal firms are those firms having traits of both formality and informality; hence, those firms satisfying only one or two criteria according to our definition. Formal firms are those satisfying all three criteria. The three indicators together question the mono-dimensional notion of informality as synonymous with absence of registration. In order to corroborate the heuristic capability of the new approach, the new definition of trans-formal firms is tested in the next section.

8.4. Trans-formal firms in 19 developing countries

In this section, the three formality criteria of our definition are applied in classifying firms. The process of assessing the relevance of trans-formal firms involves two stages. The first stage provides descriptive statistics about the prominence of trans-formal firms across 19 developing countries. In the second stage, a regression analysis is performed to investigate what distinguishes the studied trans-formal enterprises from the informal ones.

8.4.1. Building the dataset

The analysis exploits data from WBIES, which is a survey carried out by the World Bank Group for gathering information about informal enterprises. The data are representative of the informal sector of the countries where the survey has been carried out and covers the

three formality criteria derived from the definition of informal enterprises offered by ILC (1993): business registration, separate bank account and financial account separate from the household. Additionally, information about the characteristics of entrepreneurs and enterprises and about their performance and daily activities was gathered.

The heterogeneity of prices across countries and over time needed to be addressed. The surveys report data using the local currency unit (LCU) at current prices. In order to make prices comparable across surveys, prices were converted from local currency units to USD at 2005 prices, employing 2005 as the baseline because it is the year when the oldest survey took place.

Unfortunately, we could not include formal firms from the World Bank Enterprise Survey (WBES) as it relies on a different questionnaire missing one of the three criteria of our definition: the presence of a financial account separated from the household. Besides, the questionnaires employed in the two surveys are not standardized and not necessarily always comparable.[18]

The absence of the third formality indicator and, to a minor extent, the differences between the two surveys led us to focus on the relevance of trans-formal firms among the so-called informal sector. Nonetheless, Appendix 1 presents an exploratory analysis of trans-formal firms in 11 countries based on data from both the World Bank Micro Enterprise Survey and the Informal Enterprise Survey where the informality index is built using two variables.

8.4.2. Trans-formal firms in 19 countries: a snapshot

To begin with, we assessed the presence of trans-formal firms as a share of the informal enterprises. This exercise is a necessary first step for assessing the validity and the heuristic capability of our new approach. We expect trans-formal firms to be a relevant share of the informal sector.

Table 1 provides the percentage of trans-formal firms in the considered countries. Overall, trans-formal firms represent half of the enterprises in the dataset. Angola is the country with

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[18] The following are some of the issues that needed attention: The WBES of Kenya and the Democratic Republic of Congo does not provide information on the education of the owner. Another difference is that WBES does not include data about part-time workers. In some cases, the questions are also differently phrased in the two surveys; for example, informal firms are asked whether they sell under contract to other firms whilst formal firms are asked whether they outsource the production to other firms.

the highest share of trans-formal firms (89.1%) whereas Myanmar (24.7%) had the lowest rate. Overall, trans-formal enterprises seem to be more prominent among African and Latin American countries where they represent 53 and 50% of the sample, respectively, followed by Asia (around 28%). This first result corroborates our assumption that trans-formal firms constitute a relevant share of the enterprises operating in the informal sector.

[Table 1]

Table 2 provides descriptive statistics for the sample as a whole and Table 3 displays the results by formality status. Some interesting patterns can be observed. An important element that already emerges at this stage of the analysis is that trans-formal firms declare monthly sales that are on average roughly 10 times higher than those declared by informal enterprises. Thus, following the definition by Berner et al. (2012), trans-formal firms may be more likely to belong to the group of upper tier informal firms, whilst informal firms are more likely to belong to the group of survivalist activities. In other words, trans-formal firms are more productive. Second, while trans-formal enterprises report higher sales, they also face higher costs of labour. This difference can be accounted for by the higher employment rate since trans-formal enterprises employ on average roughly one unit more than their informal counterparts (3 and 2.1 employees, respectively). This finding suggests that the engagement with informality is not necessarily driven by the desire to avoid labour costs, which is contrary to what has been argued by some scholars (Farrell, 2004; 2006, Baily et al., 2006). Lastly, both types of enterprises are established enterprises that already survived the infancy stage. The average age of the enterprises is 9.3 years: trans-formal and informal firms are respectively 9 and 9.7 years old on average. Thus, far from being transitory activities, informal and trans-formal firms are established firms that achieved maturity. This finding challenges those authors who argue that informal enterprises are likely to disappear in time (La Porta and Shleifer, 2008 and 2014) and is in line with those authors arguing that informal activities are resilient as they can persist over time (Hillenkamp et al., 2013; Gibson-Graham 1996 and 2006; Leyshon et al., 2003).

[Table 2]

[Table 3]

Given the exclusive reliance on the Informal enterprise Survey, it can be argued that the only evidence presented concerns the existence of trans-formal firms within the so-called informal

sector. To address this criticism, a snapshot of the prominence of trans-formal firms across all firms, i.e. the formal as well as the informal enterprises, is provided in Appendix 1. To this end, a formality indicator is built using only two criteria and merged the WBIES with the WBES data resulting in a complete dataset for 11 developing countries. When classifying the firms of the newly constructed dataset into the three groups, the finding is further corroborated. Trans-formal enterprises represent 35% of the full firm dataset, more than one third.

8.4.3. Multivariate analysis

The objective of this analysis is to identify the characteristics of trans-formal enterprises and the macro-level factors that can influence the spread of hybrid entrepreneurial forms.

Empirical Approach

To explore the characteristics of trans-formal vis-à-vis informal enterprises a multivariate regression analysis is performed, employing the following general model:

$$Y_{if} = \beta_0 + \beta_1 X_{if} + \beta_2 E_{if} + \beta_3 C + \beta_4 M + \beta_5 G + \beta_6 T + \varepsilon$$

where Y_{if} is an indicator variable taking the value of 1 when firm f of entrepreneur i is trans-formal and 0 if it is informal according to our new definition. X_{if} represents a set of variables indicating the entrepreneurs' individual characteristics (gender and education); E_{if} is a set of enterprise characteristics (age, sector, monthly sales, cost of labour, number of employees, purchase of new equipment, sales under contract to other enterprises, and access to bank loans). C indicates the country where the enterprise operates and M is a set of macroeconomic indicators capturing the characteristics of those countries (GDP per capita, unemployment rate, ease of doing business, transparency and corruption index, gender equality index, and economic freedom index). G indicates the geographic area (Africa, Asia, and Latina America), and T controls for the year of the interview. Table 4 provides the full list of variables employed in the analysis.

[Table 4]

Analysis and discussion of the main findings

The main results of the empirical analysis are presented in Table 5. The basic model adopted in the analysis is a Linear Probability Model (LPM). Standard errors were clustered at the country level to address heteroscedasticity (Column 1). To corroborate the LPM results, several other specifications were implemented. Columns 2 and 3 provide the coefficients of the logit and probit models respectively. The advantage of logit and probit models compared to LPM is that they fit the responses to fall within 0 and 1 hence they do not produce outliers. Next to the logit and probit model, a fixed effects (FE) model and the multiple effects mixed model (MEM) are employed (see Columns 4 and 5 of Table 4, respectively). The main advantage of the FE model compared to the general linear model (such as LPM) is that it controls for unobserved factors that are correlated with the variable included in the model at the group level. Thus, the FE model focuses on within-group heterogeneity. However, the between-group variation is a major concern here given the heterogeneity among the considered countries. The MEM is performed to address this issue. The results are consistent across the different methods employed, demonstrating the robustness of the results.

Concerning the characteristics of entrepreneurs, the findings indicate that trans-formal enterprises are on average run by more educated owners. This is not surprising since often informal businesses are depicted as employing less human capital compared to formal ones. This finding implies that trans-formal entrepreneurs display higher human capital, although it may not necessarily be a key element for the success of enterprises (Simpson et al., 2004).

As for the characteristics of the studied enterprises, trans-formal firms tend to employ more workers compared to informal ones. Furthermore, trans-formal firms are on average younger firms, although the difference is very small. No evidence was found that the sector is associated with the trans-formality status of the firms; or that trans-formal firms have better access to bank loans. The limited access to loans is not surprising given that micro-enterprises typically face such constrains (Farazi, 2014). Since the majority of the enterprises in the sample are micro-enterprises employing on average only two workers, it is not surprising that the presence of a bank account (which is one of the criteria defining a trans-formal firm) is not associated with improved access to loans.

With regard to the performance of the enterprises, the findings indicate that trans-formal firms display higher monthly sales, and that such difference is statistically significant. The

higher monthly sales and the larger size reported by trans-formal firms provide further evidence that the studied trans-formal firms represent upper-tier entrepreneurs whereas informal firms correspond to the lower tier-firms identified by Berner et al. (2012). The higher number of workers employed by trans-formal firms corresponds to the higher cost of labour, implying that the size gap is not likely to be driven by unpaid workforce. This finding has important implications for policymaking, as it calls for a differentiated policy approach that provides tailor-made strategies for the different types of firms (Grimm et al., 2011; Berner et al., 2012). For instance, more dynamic trans-formal firms may not be interested in micro-credit lines but rather prefer larger bank loans. Vice versa, training and workshops could be a useful instrument for informal businesses whereas trans-formal entrepreneurs with a higher level of human capital may be more attracted by schemes improving their access to markets and services. Likewise, lowering the costs of registration could encourage the formalization of many trans-formal enterprises but might not necessarily trigger the formalization of survivalist informal activities.

Another element emerging from the analysis is that trans-formal enterprises are on average more likely to produce for other enterprises under formal contract; therefore, they might be better integrated in the markets. This is a further indication that trans-formal firms correspond to the segment of upper tier market-oriented firms. Additionally, this finding implies the centrality of interpersonal networks for the daily activities of enterprises across the informal as well as the formal sector (Hillenkamp et al., 2013).

[Table 5]

Lastly, the findings reveal that trans-formal enterprises are more likely to operate in African countries. This result stresses the need to consider the country context to investigate characteristics that could account for the spread of trans-formal firms.

To further validate the analysis, the MEM model was adopted, including a set of macro variables capturing the characteristics of the countries. There is widespread consensus that the informal economy is context-dependent and that there are a variety of macro-economic characteristics that could account for the diffusion of non-compliant activities (Thai and Turkina, 2014). For instance, high levels of GDP per capita are believed to be associated with a low level of informality (Duarte, 2017). Similarly, high unemployment rates are considered to be one cause of informality, given that fewer jobs in the formal market often force people

to engage with informal or trans-formal activities (Medina et al., 2017). Therefore, GDP per capita and unemployment in the year of the interview as reported by the World Bank online Data Bank were included.

Another macro determinant often investigated in the literature on the formal economy is the quality of governance. Countries with better governance tend to display lower rates of informality; thus, the quality of governance is negatively correlated with the size of the informal economy (Loayza et al., 2005; Kus, 2010). The Economic Freedom Index by the Fraser Institute was included. Next to the quality of governance, corruption is another macro indicator often considered in the literature. High levels of corruption are associated with a larger informal economy as corruption frequently lack of enforcement of laws and regulations (Farrell., 2004 and 2006). Thus, the Transparency, Corruption, and Accountability Index provided by the World Bank were added to the model.

It is a widespread belief that the size of the informal economy is a consequence of heavy regulatory frameworks and bureaucracy. High costs and time of registration are considered to negatively affect the decision to register a business (De Soto, 1990 and 2003). Therefore, the Ease of Doing Business Index provided by the World Bank was included. Lastly, given the high participation of women in the informal economy (Chen, 2002; ILO, 2012), the Gender Inequality Index by the World Bankwas also included. Due to the peculiar constraints that they face, women entrepreneurs may be pushed out of the formal market and therefore they may be more likely to engage with various levels of informality.

After including the discussed macro variables in the regression model, the country variation was exploited to investigate whether those macro characteristics correlate with the formality status of the firms (Table 4, Columns 6 and 7). The results are consistent with the previous analysis, demonstrating the robustness of the findings. Interestingly, Economic Freedom and unemployment rate were found to be positively correlated with the trans-formal status of firms.

Given the heterogeneity of the informal enterprises, the analysis was performed on sub-samples of enterprises using the MEM model. This was the preferred model because it accounts for between-country variation. The analysis was performed on the sub-samples of women, men, self-employees and non-individual companies (that are other micro, small, and medium enterprises) (Table 6).

[Table 6]

Overall, the results are consistent among sub-groups. The owners of trans-formal firms display a higher level of education and employ a higher number of workers (only the sub-samples of women and men include the size among the explanatory variables). Interestingly, only the sub-sample of non-individual companies appears to be systematically more likely to sell under contract to other firms, implying that only larger trans-formal firms are integrated in the market (Table 6, Column 3). Women owners of trans-formal firms do not exhibit higher sales compared to their informal counterparts (Table 6, Column 4). This finding may indicate that both trans-formal and informal women entrepreneurs face common constraints and obstacles preventing their access to markets. In short, the analysis by sub-group further validates the identified findings and provides the basis for future research aiming at investigating the specific barriers preventing women entrepreneurs' efforts to increase their revenues.

8.5. Conclusions

The dominant formal-informal dichotomy has affected both the academic debate and policymaking. The vast literature on the informal economy often accepts the contraposition between formal and informal firms describing the "informal economy" and "informal firms" as lacking human capital, having low profitability, and competing unfairly with the more productive, large formal firms. Similarly, policymakers seem to accept this situation resulting in the implementation of policies based on the formal/informal dichotomy. However, this dichotomy does not recognize the heterogeneity of characteristics within the so-called informal economy.

In an attempt to break the formal/informal dichotomy, this paper outlines a new approach to informality based on the notions of borderland and trans-formal firms. The borderland is defined as the space of ambiguity between formality and informality. The institutional overlap identified in the borderland allows firms to engage with different degrees of (in)formality giving space to hybrid entrepreneurial forms, here called trans-formal firms. The latter are firms presenting traits of both formality and informality.

The new classification derives from the de-construction of the ILC 1993 definition of informal enterprises. To deconstruct the notion of informal enterprises, Derrida's (1967)

strategy of deconstruction, consisting in adding at least one element that overcomes the dualism, was applied. Thus, the new definition of trans-formal firms breaks the formal/informal dichotomy that is still at the core of the ILO definition of informal economy.

After outlining the new approach, the paper empirically assesses the heuristic capability of the new definition of trans-formal firms exploiting data from the WBIES about so-called "informal firms" operating in 19 countries. Around half of the enterprises of the sample were classified as trans-formal firms. This re-classification supports the hypothesis about the prominence of hybrid entrepreneurial forms operating in the borderland between formality and informality.

The findings of the empirical analysis further indicate that trans-formal enterprises are run by more educated owners, are larger and display higher monthly sales, although they face higher costs of labour. The studied trans-formal enterprises are on average young firms that are well integrated in the market, as they are more likely to produce under contract for other enterprises. Lastly, trans-formal enterprises are more likely to operate in African countries and in countries with higher economic freedom according to the Freedom Index. The results suggest that trans-formal firms are similar to what Berner et al. (2012) classified as growth-oriented informal firms.

The heterogeneity of the studied firms calls for a more nuanced approach. Creating processes that allow for a transparent engagement with trans-formal firms in the borderland is a challenge, many of the assumptions about informality misrepresent the realities of trans-formal firms in the borderland. There is a need for differentiated policies able to address the different priorities of informal and trans-formal agents. Implementing growth policies based on survival activities is prone to be ineffective or even counterproductive. Conversely, poverty alleviation policies and micro-credit lines may be unattractive to trans-formal firms or lead to ineffective outcomes.

The main challenge is to elaborate new strategies different from the systematic formalization of informal enterprises. In this perspective, policies should focus on the *borderland* rather than on the *borderline* separating formality and informality, for instance by strengthening the interlinkages between the formal and informal economy. Policies and interventions need to address the specific potential characterizing the borderland and its actors. In this regard, policies and practices recognizing the borderland and trans-formal firms are a first important

policy step. An inclusive development process holds the promise of being more effective in generating both local infrastructure development and community cohesion, as the owners of trans-formal firms can make use of their contextual knowledge and provide both economic and political local leadership (Chen, 2005; Guha-Khasnobis et al.; 2007; Lindell, 2010).

Recognizing the capacity of trans-formal firms and giving them political visibility may have the potential to spur economic growth considerably and represents a valid alternative against the standard formalization efforts. There is a need to recognize the borderland so that the study of processes and dynamics in the borderland can be promoted free from dichotomist perspectives. The strengths and weaknesses of the agents navigating in the borderland together with the structures and institutions regulating their interactions need to be explored further to find new, (unorthodox) forms of inclusion and ultimately inclusive growth.

Tables and figures

Table 1: Relevance of trans-formal firms in 19 countries

	Country	Year	Trans-formal (%)	Informal (%)	Observations
1	Angola	2010	89,1	10,9	119
2	Argentina	2010	46,9	53,1	384
3	Botswana	2010	58,6	41,4	99
4	Burkina-Faso	2009	70,8	29,2	120
5	Cameroon	2009	63,9	36,1	122
6	Cape Verde	2009	63,6	36,4	129
7	Democratic Republic Congo	2013	53,5	46,5	480
8	Ghana	2013	51,9	48,1	729
9	Guatemala	2010	47,2	52,8	303
10	Ivory Coast	2008	55,8	44,2	129
11	Kenya	2013	45,8	54,2	533
12	Madagascar	2008	28,3	71,7	127
13	Mali	2010	71,7	28,3	120
14	Mauritius	2008	62,9	37,1	132
15	Myanmar	2014	24,7	75,3	300
16	Nepal	2009	37,5	62,5	120
17	Niger	2005	30,6	69,4	108
18	Peru	2010	54,2	45,8	480
19	Rwanda	2011	36,7	63,3	240
20	All		50,1	49,9	4774
	Geographic area				
	Africa		53,5	46,5	3,181
	Asia		28,3	72,7	420
	Latin America		50	50	1,167

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.
Trans-formal	4,768	0.504	0.500
Female	4,749	0.425	0.494
Primary	4,699	0.303	0.459
Secondary	4,699	0.395	0.489
University	4,699	0.096	0.295
Vocational	4,699	0.137	0.344
Manufacture	4,768	0.433	0.496
Service	4,768	0.210	0.407
Selling	4,768	0.241	0.427
Age firm	4,677	9.388	9.076
Monthly sales	1,646	3,497.216	39,918.14
Labour cost	3,604	9,126.395	11,608.1
Contract	4,636	0.161	0.367
Fixed assets	4,630	0.268	0.443
Size	4,768	2.588	40235
Bank loan	4,729	0.102	0.302
Africa	4,768	0.667	0.471
Asia	4,768	0.088	0.283
Year	4,768	2011.025	2.063
Angola	4,768	0.025	0.156
Argentina	4,768	0.081	0.272
Botswana	4,768	0.021	0.143
Burkina	4,768	0.025	0.157
Cameroon	4,768	0.026	0.158
Cape Verde	4,768	0.027	0.162
DRC	4,768	0.101	0.301
Ghana	4,768	0.153	0.360
Guatemala	4,768	0.064	0.244
Ivory Coast	4,768	0.027	0.162
Kenya	4,768	0.112	0.315
Madagascar	4,768	0.027	0.161
Mali	4,768	0.025	0.157
Mauritius	4,768	0.028	0.164
Myanmar	4,768	0.063	0.243
Nepal	4,768	0.025	0.157
Niger	4,768	0.021	0.145
Peru	4,768	0.101	0.301
Rwanda	4,768	0.050	0.219

Table 3: Descriptive statistics by type of enterprise

Variable	Transformal			Informal		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Female	2,394	0.406	0.491	2,355	0.443	0.497
Primary	2,355	0.268	0.443	2,344	0.337	0.473
Secondary	2,355	0.400	0.49	2,344	0.391	0.488
University	2,355	0.116	0.32	2,344	0.076	0.266
Vocational	2,355	0.166	0.372	2,344	0.107	0.309
Manufacture	2,404	0.415	0.493	2,364	0.452	0.498
Service	2,404	0.204	0.403	2,364	0.216	0.412
Selling	2,404	0.248	0.432	2,364	0.233	0.423
Age firm	2,351	9.076	8.753	2,326	9.703	9.382
Monthly sales	853	6,059.515	55,219.69	793	741.048	3,840.791
Labour cost	1,871	1,517.313	15,967.73	1,733	259.816	2,050.672
Contract	2,360	0.189	0.392	2,276	0.131	0.3373995
Fixed assets	2,357	0.294	0.456	2,273	0.241	0.4278396
Size	2,404	3.033	5.145	2,364	2.135	2.31
Bank loan	2,372	0.119	0.324	2,357	0.084	0.277
Africa	2,404	0.708	0.455	2,364	0.626	0.484
Asia	2,404	0.05	0.217	2,364	0.127	0.333
Year	2,404	2,010.931	1.928	2,364	2,011.121	2.189
Angola	2,404	0.045	0.206	2,364	0.005	0.071
Argentina	2,404	0.075	0.263	2,364	0.086	0.281
Botswana	2,404	0.025	0.157	2,364	0.016	0.126
Burkina	2,404	0.035	0.185	2,364	0.015	0.121
Cameroon	2,404	0.032	0.177	2,364	0.019	0.135
Cape Verde	2,404	0.034	0.182	2,364	0.02	0.140
DRC	2,404	0.107	0.309	2,364	0.094	0.292
Ghana	2,404	0.159	0.366	2,364	0.146	0.354
Guatemala	2,404	0.059	0.237	2,364	0.068	0.251
Ivory Coast	2,404	0.032	0.175	2,364	0.022	0.148
Kenya	2,404	0.103	0.304	2,364	0.121	0.326
Madagascar	2,404	0.015	0.121	2,364	0.038	0.192
Mali	2,404	0.036	0.186	2,364	0.014	0.119
Mauritius	2,404	0.035	0.183	2,364	0.021	0.143
Myanmar	2,404	0.031	0.173	2,364	0.096	0.294
Nepal	2,404	0.019	0.136	2,364	0.032	0.175
Niger	2,404	0.011	0.105	2,364	0.032	0.175
Peru	2,404	0.108	0.311	2,364	0.093	0.291
Rwanda	2,404	0.039	0.193	2,364	0.062	0.242

Table 4: List of variables

Variable	Description
Trans-formal	Whether the enterprises is classified as trans-formal
Female	Whether the owner is female
Primary	Primary school degree is the highest education level
Secondary	Secondary school degree is the highest education level
University	University school degree is the highest education level
Vocational	Vocational study degree is the highest education level
Manufacture	Manufacture is the sector of activity
Service	Service is the sector of activity
Selling	Selling(retail) is the sector of activity
Age firm	Age of the enterprise
Monthly sales	Monthly sales of the enterprise
Labour cost	Cost of labour
Contract	Whether the enterprise produce under contract for other enterprises
Fixed assets	Whether the owner bought new equipment, land, machineries or other fixed assets over the past three years
Size	Number of employees
Bank loan	Whether the enterprise received a bank loan
Africa	Whether the enterprise is located in African country
Asia	Whether the enterprise is located in Asian country
Year	Year of the interview
GDP per capita	GDP per capita (World Bank data)
EDB	Ease of Doing Business index (World Bank data)
Economic Freedom	Economic Freedom Index (Fraser Institute)
Corruption	Transparency, accountability and corruption index (World Bank data)
Unemployment	Unemployment rate (World Bank data)
Gender Equality	Gender Equality index (World Bank data)
Angola	Whether the enterprise is located in Angola
Argentina	Whether the enterprise is located in Argentina
Botswana	Whether the enterprise is located in Botswana
Burkina	Whether the enterprise is located in Burkina Faso
Cameroon	Whether the enterprise is located in Cameroon
Cape Verde	Whether the enterprise is located in Cape Verde
DRC	Whether the enterprise is located in DRC
Ghana	Whether the enterprise is located in Ghana
Guatemala	Whether the enterprise is located in Guatemala
Ivory Coast	Whether the enterprise is located in Ivory Coast
Kenya	Whether the enterprise is located in Kenya
Madagascar	Whether the enterprise is located in Madagascar
Mali	Whether the enterprise is located in Mali
Mauritius	Whether the enterprise is located in Mauritius
Myanmar	Whether the enterprise is located in Myanmar
Nepal	Whether the enterprise is located in Nepal
Niger	Whether the enterprise is located in Niger
Peru	Whether the enterprise is located in Peru
Rwanda	Whether the enterprise is located in Rwanda

Table 5: Characteristics of trans-formal firms vis-à-vis informal firms

	CDA	Logit	Probit	FE	MEM	Macro	Other macro
Female	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.022
	(0.029)	(0.033)	(0.032)	(0.029)	(0.029)	(0.029)	(0.033)
Primary	0.150**	0.177***	0.173***	0.150**	0.150**	0.150**	0.136*
	(0.056)	(0.062)	(0.064)	(0.056)	(0.065)	(0.065)	(0.071)
Secondary	0.232***	0.262***	0.258***	0.232***	0.232***	0.232***	0.230***
	(0.055)	(0.059)	(0.060)	(0.054)	(0.066)	(0.066)	(0.071)
University	0.372***	0.369***	0.373***	0.372***	0.372***	0.372***	0.386***
	(0.070)	(0.046)	(0.051)	(0.070)	(0.077)	(0.077)	(0.087)
Vocational	0.243***	0.258***	0.259***	0.243***	0.243***	0.243***	0.205***
	(0.064)	(0.057)	(0.060)	(0.063)	(0.072)	(0.072)	(0.079)
Manufacture	0.028	0.034	0.032	0.028	0.028	0.028	-0.244
	(0.182)	(0.200)	(0.190)	(0.181)	(0.124)	(0.124)	(0.174)
Service	0.013	0.018	0.013	0.013	0.013	0.013	-0.241
	(0.172)	(0.188)	(0.180)	(0.171)	(0.127)	(0.127)	(0.178)
Selling	0.093	0.105	0.100	0.093	0.093	0.093	-0.220
	(0.192)	(0.202)	(0.195)	(0.190)	(0.126)	(0.126)	(0.177)
Age firm	-0.003**	-0.004***	-0.004***	-0.003**	-0.003*	-0.003*	-0.003
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
Monthly sales	0.038***	0.048***	0.047***	0.038***	0.038***	0.038***	0.042***
	(0.013)	(0.015)	(0.014)	(0.013)	(0.013)	(0.013)	(0.014)
Labour cost	0.007	0.008	0.009	0.007	0.007	0.007	0.013
	(0.011)	(0.014)	(0.013)	(0.011)	(0.009)	(0.009)	(0.010)
Contract	0.080*	0.092**	0.090**	0.080*	0.080*	0.080*	0.115**
	(0.038)	(0.045)	(0.043)	(0.038)	(0.043)	(0.043)	(0.051)
Fixed assets	0.040	0.045	0.039	0.040	0.040	0.040	0.021
	(0.034)	(0.038)	(0.038)	(0.034)	(0.029)	(0.029)	(0.033)
Size	0.022***	0.037***	0.033***	0.022***	0.022***	0.022***	0.020***
	(0.006)	(0.014)	(0.012)	(0.006)	(0.006)	(0.006)	(0.006)
Bank loan	0.047	0.060	0.062	0.047	0.047	0.047	0.068
	(0.044)	(0.056)	(0.054)	(0.044)	(0.042)	(0.042)	(0.052)
Africa	0.376***	0.201***	0.200***	0.000	0.176*	0.105	-0.215
	(0.024)	(0.057)	(0.055)	(.)	(0.107)	(0.407)	(0.273)
Asia	0.000	-0.170	-0.155	0.000	-0.118	0.322	0.000
	(.)	(0.161)	(0.155)	(.)	(0.129)	(0.505)	(.)
Year	-0.067*	-0.089**	-0.082**	0.000	-0.067**	-0.032	0.028
	(0.035)	(0.039)	(0.037)	(.)	(0.032)	(0.021)	(0.045)
GDP pc						-0.000	-0.000
						(0.000)	(0.000)
Ease of						-7.920	28.301
						-9.354	-23.603
Unemployment						0.101***	0.047
						(0.028)	(0.041)
Economic						0.492***	-0.249
						(0.189)	(0.424)
Corruption							0.440
							(0.502)
Gender							-0.428
							(0.367)
N	1,262	1,262	1,262	1,262	1,262	1,262	949
Countries	18	18	18	18	18	18	12

Table 6: Characteristics of trans-formal firms by sub-group

	All	Self	mSME	Women	Men
Female	-0.010	-0.063	0.014		
	(0.029)	(0.049)	(0.036)		
Primary	0.150**	0.196*	0.124	0.174*	0.139
	(0.065)	(0.107)	(0.083)	(0.092)	(0.094)
Secondary	0.232***	0.242**	0.235***	0.355***	0.144
	(0.066)	(0.112)	(0.081)	(0.095)	(0.093)
University	0.372***	0.432***	0.336***	0.489***	0.293***
	(0.077)	(0.131)	(0.094)	(0.116)	(0.105)
Vocational	0.243***	0.352***	0.181**	0.327***	0.179*
	(0.072)	(0.121)	(0.090)	(0.103)	(0.102)
Manufacture	0.028	0.011	0.034	-0.109	0.048
	(0.124)	(0.229)	(0.147)	(0.241)	(0.146)
Service	0.013	-0.114	0.095	-0.018	0.006
	(0.127)	(0.233)	(0.151)	(0.245)	(0.150)
Selling	0.093	0.130	0.024	-0.070	0.157
	(0.126)	(0.231)	(0.151)	(0.242)	(0.149)
Age firm	-0.003*	-0.001	-0.004*	-0.003	-0.003
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Monthly sales	0.038***	0.056**	0.033**	0.025	0.052***
	(0.013)	(0.023)	(0.015)	(0.018)	(0.018)
Labour cost	0.007	-0.005	0.021*	0.002	0.004
	(0.009)	(0.017)	(0.011)	(0.014)	(0.012)
Contract	0.080*	0.026	0.136***	0.092	0.066
	(0.043)	(0.077)	(0.052)	(0.079)	(0.052)
Fixed assets	0.040	0.036	0.023	0.060	0.018
	(0.029)	(0.054)	(0.035)	(0.049)	(0.037)
Size	0.022***			0.043***	0.018***
	(0.006)			(0.014)	(0.006)
Bank loan	0.047	0.048	0.065	-0.016	0.078
	(0.042)	(0.072)	(0.052)	(0.065)	(0.055)
Africa	0.176*	0.220	0.173	0.151	0.148
	(0.107)	(0.222)	(0.127)	(0.190)	(0.133)
Asia	-0.118	-0.236	-0.056	-0.273	-0.123
	(0.129)	(0.258)	(0.155)	(0.240)	(0.159)
Year	-0.067**	-0.004	-0.082**	-0.074	-0.058
	(0.032)	(0.068)	(0.036)	(0.060)	(0.037)
N	1,262	472	790	502	760
Countries	18	17	18	18	18

Note: Clustered standard errors in parentheses. All columns control for the country where the enterprise operates. All columns provide results from the multiple-effects-mixed methods with clustered standard errors. All models control for individual characteristics (sex and education), characteristics of the enterprises (sector of activity; age of the firm; monthly

sales; cost of labour; whether the enterprise sell under contract to other firms; fixed assets; size of the enterprise, and access to loans), geographic area, and year of the interview. Furthermore, all columns include country fixed effects. Column 1 reports the results for the all sample. Columns 2 and 3 limit the analysis to the sub-samples of self-employees and micro-enterprises. Columns 4 and 5 restrict the analysis to the sub-samples of women and men.

Figure 1: Stylized borderland economy in a continuum model
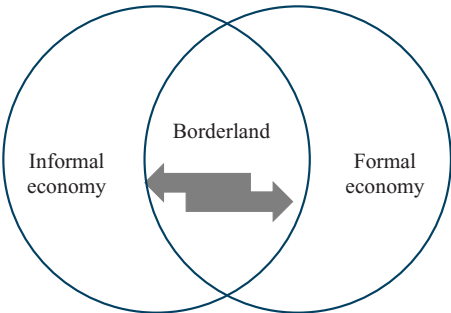
Note: Trans-formal firms operate in the borderland between the two boundaries.

Figure 2: Share of trans-formal and informal firms across 19 developing countries
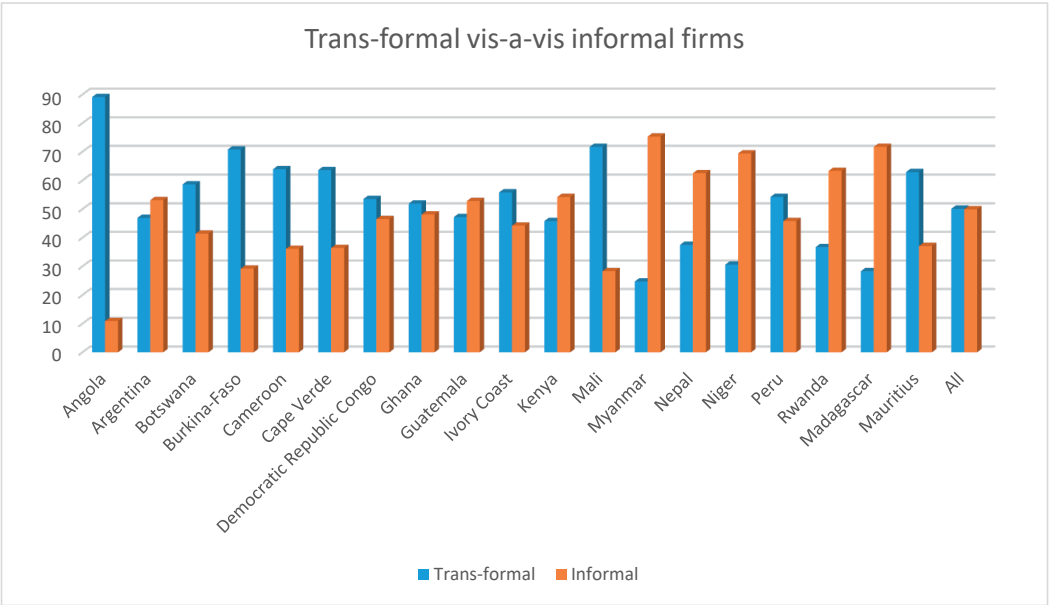
Note: The horizontal axis measures the share of firms in percentage terms.

Appendix 1: Trans-formal firms as share of the private sector

The absence of one of the three criteria in the WBES dataset did not prevent us from applying a formality indicator based on the two available indicators. We therefore assessed the relevance of trans-formal firms in a combined dataset of WBIES and WBES. We only included countries where we had observations for both types of firms resulting in a dataset consisting of micro-enterprises operating in 11 countries.

As already discussed in the paper, the World Bank Micro Enterprise Survey (WBES) includes information about two of the three criteria in our definition. More precisely, the WBES does not provide information about the availability of a separate financial account for the firm, independent of household finances. Nor does it provide information on whether the firm has at least an official balance sheet. However, it asks whether the balance is separate from the head quarter or if it has been checked by some inspector. Thus, the WBES assumes that registered firms are endowed with an official balance sheet. Due to the absence of this third criterion we decided to adopt only registration and bank account as indicators for building our formality index.

Employing two criteria does not substantially change the spirit of the analysis, which is to explain the spread of firms presenting hybrid traits of formality. We therefore labelled as formal and informal those enterprises presenting both criteria and none of the two criteria, respectively, and we labelled trans-formal those enterprises presenting at least one of the two criteria. Table A1 displays the frequency of firms and the possible combination of criteria.

[Table A1]

Importantly, although less comprehensive, this analysis allows us to provide an overview of the relevance of trans-formal firms among micro-enterprises operating in 11 countries. Table A2 displays descriptive statistics about the considered countries. It can be observed that trans-formal firms are more concentrated in Myanmar (almost 55%), followed by Nepal and Cameroon. The countries with the lowest share of trans-formal firms are Madagascar and Mauritius (around 15%).

[Table A2]

It is important to stress that the definition of formality using only two criteria is narrow. Therefore, the discussed findings under-represent the spread of trans-formal firms.

Nonetheless, trans-formal firms represent 34% of the enterprises in our dataset. In line with our expectations, trans-formal firms are a relevant share of the micro enterprises operating in the private sector as visualized in Figure A2. This share is considerably higher in Asian countries, where trans-formal firms represent more than half of the considered enterprises. (Figure A3).

[Figure A2]

[Figure A3]

To highlight the differences between the dichotomist approach and the new borderland approach, we can compare the descriptive statistics obtained using the different definitions. Table A3 shows how the representation of firms changes when applying the dichotomist view rather than adopting the borderland approach. Following the traditional dichotomist definition of informal enterprise as unregistered business, we classify as informal around 55% of the firms in the sample, and 45% as formal (Panel A). When using our new definition (Panel B), formal firms are almost halved with a twenty percentage points drop in their prevalence compared with the dichotomist classification. On the other side of the spectrum, informal firms decrease by around three percentage points, and thus they still represent the majority of the firms in sample.

[Table A3]

One might be tempted to include the official balance sheet as well as and indicator of formality. If we assume, as the World Bank does, that all registered firms have a financial statement, trans-formal firms would represent almost half of the firms in the dataset (Table A3 Panel C). As a result, informal firms would no longer be the majority in our sample; they would represent around one quarter of the considered firms. Figure A4 visually displays the difference between the dichotomist definition of formality as business registration and the borderland approach for this re-classified dataset.

[Figure A4]

After establishing the prominence of trans-formal firms, we assess what characterizes them (Table A4). First, we identify a low share of women business owners in the dataset that is higher among informal businesses compared to formal and trans-formal ones. However, numbers refer to the gender of the main owner of the business; thus, the actual rate of women

entrepreneurs may be higher, since there might be women entrepreneurs owning minor shares of the businesses.

[Table A4]

The descriptive statistics indicate that the average size, monthly sales, and age of the firms increase along with the degrees of formality. The average age of the firms in our sample is around 10 years, which is far beyond the infancy stage, implying that most firms have survived and achieved maturity. As for the average size, firms in our sample hire 3.1 employees, which is line with the definition of micro-enterprise as adopted by the World Bank Surveys (less than 4 employees). Lastly, the monthly sales of formal firms and trans-formal firms are higher compared to informal ones.

Tables and figures

Table A1: Frequencies by criteria

|	Bank account	No Bank account
Registered	1,834	635
Unregistered	871	1,094

Note: Author's elaboration based on World Bank data from 11 countries.

Table A2: Percentage of trans-formal firms in 11 countries

Country	Informal (%)	Transformal (%)	Formal (%)	Observations
Burkina	32.08	22.08	45.83	240
Cameroon	29.41	28.15	42.44	238
Cape Verde	36.8	41.67	19.74	228
DRC	46.07	36.49	17.44	866
Ivory Coast	49.01	34.65	16.34	202
Kenya	39.7	26.31	33.99	859
Madagascar	49.79	14.23	35.98	239
Mauritius	53.88	14.56	31.55	206
Myanmar	38.84	54.53	6.63	739
Nepal	38.66	43.28	18.07	238
Rwanda	39.84	28.76	31.4	379
Geographic area				
All	41.36	33.96	24.67	4,434
Africa	42.09	28.93	28.98	3,457
Asia	38.79	51.79	9.42	977

Note: Author's elaboration based on World Bank data.

Table A3: Dichotomist vis-à-vis new classification

	Observations	Percentage
Panel A: Classical Dichotomist		
Non-registered	2,513	55.96
Registered	1,978	44.04
Total	4,491	100.00
Panel B: New Approach		
Informal	1,834	41.36
Trans-formal	1,506	33.96
Formal	1,094	24.67
Total	4,434	100.00
Panel C: New Approach (including separate accountability)		
Informal	1,275	28.26
Trans-formal	2,143	47.50
Formal	1,094	24.25
Total	4,512	100.00

Note: Author's elaboration based on World Bank data from 11 countries.

Table A4: Characteristics of firms by formality status

Variable	Informal	Trans-formal	Formal	Overall	Obs
Female	0.35	0.31	0.29	0.32	4,159
	(0.48)	(0.46)	(0.46)	(0.47)	
Age firm	9.06	9.45	11.24	9.8	4,477
	(8.26)	(8.35)	(8.93)	(8.67)	
Size	2.7	3.04	3.85	3.1	4,579
	(3.27)	(3.06)	(5.61)	(3.91)	
Log sales	5.54	6.4	7.85	6.69	2,820
	(1.44)	(1.52)	(3.12)	(2.4)	

Note: Author's elaboration based on World Bank data from 11 countries.

Table A5: Distribution of age, size, and monthly sales

Panel A: Age firm (years)	Panel B: Size (number of employees)

Panel C: Sales (logarithm monthly sales)	
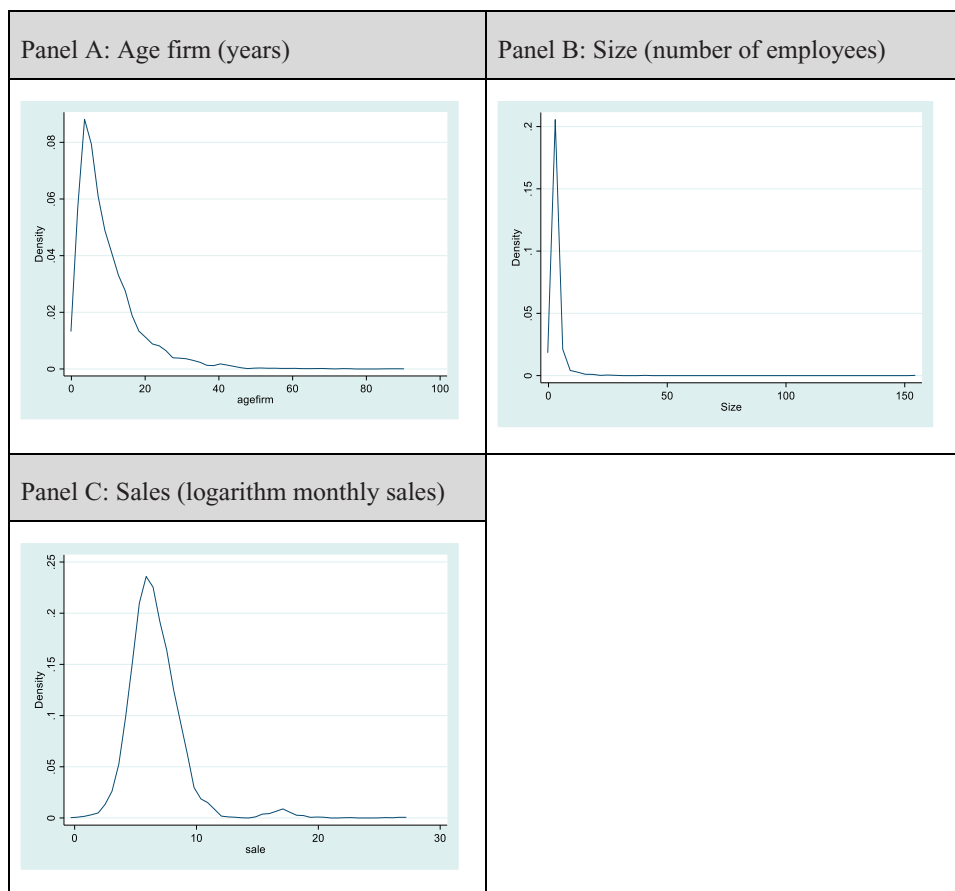
Note: Author's elaboration based on World Bank data from 11 countries.

Figure A1: Relevance of trans-formal firms in 11 countries
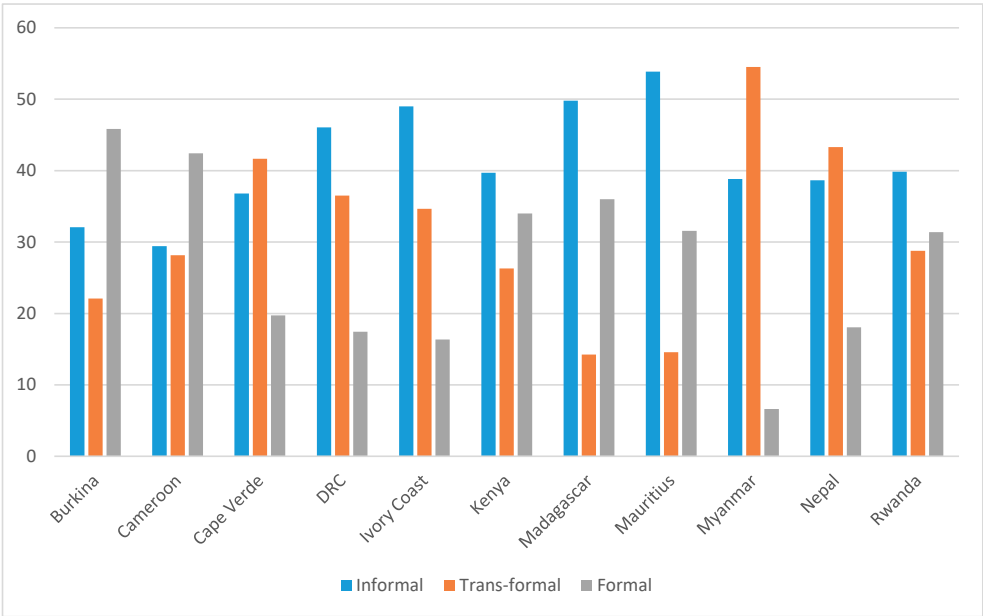
Note: Author's elaboration based on World Bank data.

Figure A2: Economic segregation by firms' formality status (aggregated data)
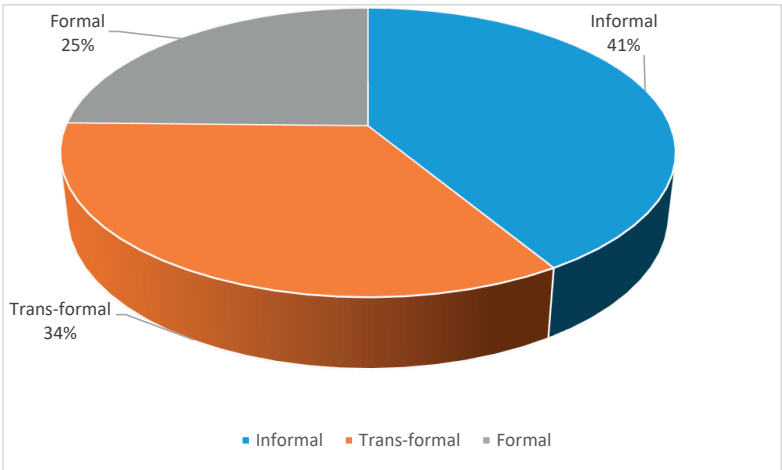
Note: Author's elaboration based on World Bank data.

Figure A3: Trans-formal firms by geographic area
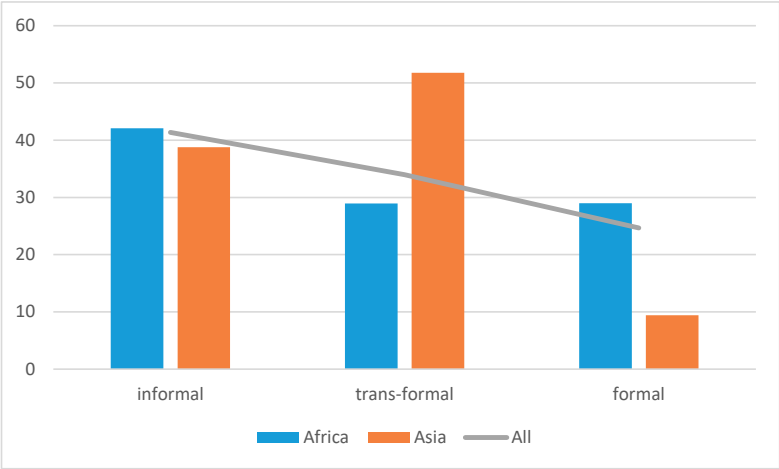
Note: Author's elaboration based on World Bank data from 11 countries.

Figure A4: Dichotomist vs. borderland and trans-formal firms' approach
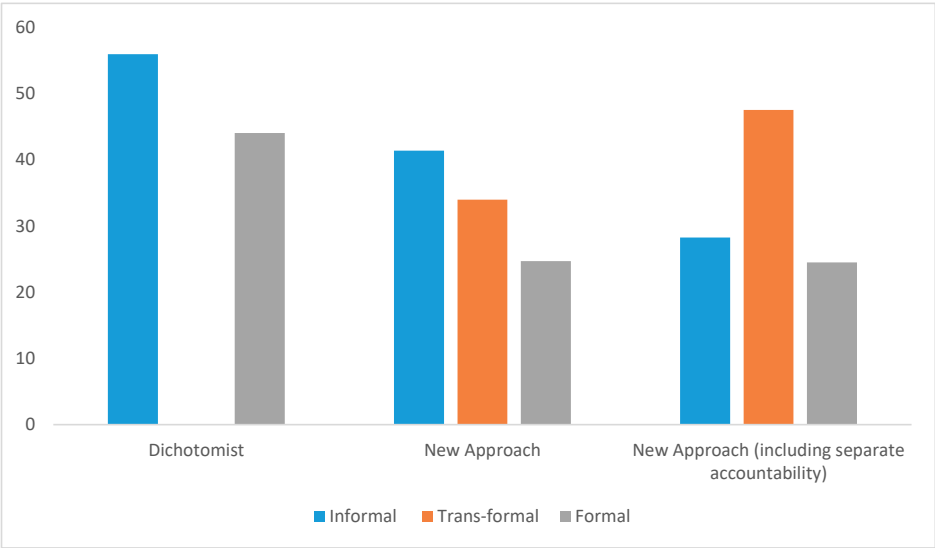
Note: Author's elaboration based on World Bank data from 11 countries.

9. Lifting Maya's veil of the informal economy or the borderland and trans-formal firms in West Java

Abstract

This chapter presents a study of trans-formal enterprises operating in West Java, Indonesia. The study further corroborates the new approach outlined in Chapter 8 and tests it on a sample of 400 enterprises. The analysis relies on a mixed methods approach combining qualitative insights from field observations, interviews, and focus group discussions with quantitative evidence in the form of descriptive statistics. The qualitative findings show how formality and informality interact and overlap. The relevance of interpersonal networks for conducting the daily economic activities is highlighted. In addition, the descriptive statistics indicate that trans-formal firms are prominent among the studied enterprises as they represent roughly half of the sample. On average trans-formal firms perform better than informal enterprises but worse than formal ones. Furthermore, the findings show that enterprises with higher degrees of formality have better access to loans, business services, and display higher political involvement and civic engagement.

9.1. Introduction

So far, the literature has mainly adopted a dichotomist approach to the informal economy based on the contraposition between registered and unregistered firms. In other words, the analyses have focused only on one dimension of formality: namely registration. Drawing on the new approach outlined in Chapter 8, this chapter aims to further corroborate the borderland approach with a case study of Indonesian enterprises. The study adopts a combination of qualitative and quantitative methods. Direct observation and responses to the interviews carried are analyzed to provide a characterization of the borderland in Indonesia. The analysis then assesses the spread of trans-formal firms and explores the main characteristics of formal, informal, and trans-formal firms. To this aim, I use descriptive statistics to empirically analyze the same sample of 400 entrepreneurs studied in the Indonesian case study on business registration in West Java (Chapter 7). The data has been collected between July 2016 and August 2017 in the cities of Bandung, Bogor and Cirebon.

For purposes of clarity, I explain the two main concepts that are at the core of my new approach: borderland and trans-formal firms. I defined the borderland as the space of overlap

between formal and informal dimensions of the economy. The latter are not two separated spheres as they frequently interact and exchange. The main assumption of the borderland is the existence of several degrees of formality. In this framework, agents can simultaneously engage with formality and informality giving place to hybrid entrepreneurial forms displaying both formal and informal traits. I classified the latter as trans-formal firms.

Based on the findings of the previous chapter on trans-formal firms in 19 developing countries, I formulate two hypotheses that the study at hand will test. First, given the considerable diffusion of trans-formal firms in the so-called informal sector of the 19 developing countries analysed in Chapter 8, I expect to find a similarly large share of trans-formal firms in the Indonesian sample. Put differently, since trans-formal firms constitute a fair part of the micro and small enterprises operating in low and middle-income countries, the first hypothesis (H1) could be phrased as follows:

H1: Trans-formal firms make up for a relevant share of the studied enterprises.

In terms of characteristics of trans-formal firms, in line with the previous study, I expect that trans-formal firms correspond to upper-tier informal firms and lower tier formal firms. Thus, I assume that trans-formal entrepreneurs are on average more educated than informal business owners but with lower educational levels compared to their formal counterparts. Likewise, I expect that trans-formal firms employ more workers than informal firms and fewer than formal firms. For the same reason, the expectation is that higher levels of formality are associated with higher annual sales and improved access to loans and business development services (BDS). Thus, the second hypothesis (H2) is that:

H2: Higher degrees of formality are associated with higher education, larger size of the firm, better business performance, and improved access to loans and business services.

The remainder of this chapter is structured as follows. The next section introduces the borderland in Indonesia based on my qualitative fieldwork data. Section 3 empirically investigates the prominence of trans-formal firms and their characteristics and discusses the main findings. This is followed by the conclusions in Section 4.

9.2. The borderland in Indonesia

This section integrates interview contents with direct observation during fieldwork to present the backdrop and context of the borderland in Indonesia. As previously discussed, so-called informal enterprises represent the great majority of the Indonesian micro and small enterprises (Rothenberg et al., 2016). Informal employment counts for roughly 85% of total employment (Charmes, 2012). Informality is so pervasive that it is difficult to even treat it as being completely isolated from formality. Indeed, formality and informality overlap, interact and exchange, constituting a borderland.

The borderland can be either institutional or physical and it can build on employment relations as well as inter-firm relations. The borderland is institutional when formal and informal institutions overlap by clashing or by accommodating each other (Helmke and Letivsky, 2004). For instance, traffic jams are often regulated by regular citizens. The traffic regulators are paid based on the free will of the drivers and it can even happen to observe police cars that wait in line for their turn to move the car. The traffic jam regulation is just one example of the borderland as it shows how formality and informality overlap. What gives an institutional character to the presence of traffic regulators is that they are socially accepted (even by police officers), implying that activities deemed illegal by law can be seen as legitimate as argued by Webb et al. (2009).

Another example of the institutional borderland is represented by the *Angkot* (abbreviation of *angkutan kota*, which translates as "city transport")*,* which are minibuses popular in many Indonesian cities. The *angkot* function as main transport system; they are the results of local community initiatives that seek to serve disadvantaged people who do not have access to public transport (Joewono et al., 2005; 2015). Due to their capacity for serving people with limited access to public transport, the *angkot* have been partially institutionalized by a Government reform in 1993 (Santoso et al., 2013). The institutionalization has been only partial since the governments' involvement is limited to a few tasks while the *angkot* still rely on informal rules (Joewono et al., 2015). The local government establishes the itineraries to be covered and assigns colours to each route but does not provide any type of subsidy. Informal norms regulate the *angkot* market: the minibuses can drop and pick up passengers at any point when there are no designated stops; prices vary depending on the distance covered and on the number of customers served; the *angkot* drivers are often informal

workers that pay a rent to the owners of the minibuses. Thus, the *angkot* system is another example of an institutional borderland, where the local government relies on an informal system of transport that functions with informal norms and informal workers. To put it differently, the formal institution depends on informal institutions, interacting and overlapping with them and thus giving space to a borderland.

The borderland is not only institutional. It can also be a physical space. For instance, formal and informal enterprises coexist in the same street and often share the same physical space. It is indeed not uncommon to find food street vendors walking around (PKL) or operating in small stands (*Waroeng*) right in front of established restaurants. Similarly, one can encounter clothes vendors selling their products in front of stores of famous brands. Frequently formal and informal enterprises run their activities in the same physical place, which can be a street square or the corner of a street. Often these places are public spaces. Yet, the shared common spaces can also be private structures or buildings. In this case, firms pay a rent to the owner of the land as indicated by many respondents. The landowner is usually also the owner of one of the enterprises of the shared space. Importantly, the firms sharing the same place have different formality statuses. Three interesting examples from the interviews can shed light on how integrated formal and informal firms are. The first example is one *martabak* (sweet or salty cake) seller who runs a business without any registration or license. This street vendor rents part of the business space to four other street vendors, who pay a fixed monthly amount. The second example is an open-air museum that is also a tourist attraction in the city of Bandung. This enterprise, which is registered (hence formal according to the legalist dichotomist definition), allows one group of street vendors to operate inside its terrain. The street vendors do not pay a daily rent but they pay an amount based on their weekly profits. If an enterprise declares no profits at the end of the week, no rent has to be paid. Interestingly, the group of vendors is composed of friends of the owner. Lastly, I interviewed the owner of a coffee shop who explained that he pays the rent by providing free tea and coffee to the employees of the company (a NGO). Like the coffee shop owner, other enterprises declared that they pay the rent in form of services or products provided to the lender. The three examples show that informal firms are not physically relegated to a separate space but they share the same space with other informal (first example) and formal firms (second and third example). Furthermore, the three examples also show three different strategies that firms adopt for paying the rent of the land or location that they use.

The borderland considers inter-firm relations as well. Among the respondents of the interviews, several declared that they sell their products to larger firms. For instance, the owners of a small informal business specialized in farming *lele* (catfish) explained that almost the entire sales go to larger registered companies. The frequent interactions between so-called formal and informal activities support the notion of an interlinked formal and informal economy (Chen, 2005; Guha-Khasnobis et al., 2007). Outsourcing part of the production to smaller informal businesses is a widespread practice that is not particular to Indonesia as has been shown by the existing literature on this topic (Chen, 2005; Meagher, 2013). The phenomenon of outsourcing is particularly visible when we consider the entire value chain of production. Floridi (2012) conducted a value chain analysis of shrimp fisheries in Benin, showing that the agents in the value chain operate in a continuum from informal fishermen to large formal foreign export companies. Interestingly, the informal agents of the chain (especially the informal fishmongers) play a vital role in filling the institutional voids[19], which are institutional failures to guarantee effective and efficient market transactions (Webb et al., 2020).

The frequent inter-firm interactions correspond often to inter-personal networks (Granovetter, 1985; 2005), which are vital for the daily activities of the firms (Van Sterven and Knorringa, 2007; Polanyi, 2018). Often the networks result in the establishment of groups where the members are bound together by strong social ties (Webb et al., 2009; Jack et al., 2010). These groups can be constituted on the basis of ethnicity or on a geographical basis, for instance by firms operating in the same street corner.

The groups can be more or less structured (Webb et al., 2009), as emerged from two focus group discussions (FGDs) that I carried out with two groups of entrepreneurs. In both FGDs, the participants explained that the group had well-defined internal rules and a clear hierarchical structure. For instance, both groups have a president, a secretary, and a treasurer; the members have to pay a fixed rate every month for financing the group and a one-time enrolment fee. Weekly meetings are carried out to discuss personal or business-related issues. The groups also take many initiatives for ensuring the social security of all the members (for instance giving a fixed amount to a family in case of the death of a member) and they occasionally organize events and celebrations together (for instance at *Merdeka*, which is the

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[19] For a detailed overview of the literature on institutional voids see Webb et al. (2020).

Indonesian Independence Day). Thus, the role of the networks is not merely economic. In one of the two FGDs the participants explained that one of the main functions of the secretary is to take care of the negotiations and mediations with local authorities and officers. That secretarial role shows once more how formal and informal institutions can interact and overlap. Additionally, the hierarchical structure and the internal norms demonstrate how far from unstructured such unofficial organizations are.

Risks sharing and sales sharing are much diffused practices the groups engage in. The second group of entrepreneurs involved in the FGDs explained that the members exchange services and products with each other. For instance, the enterprise specialized in marketing and communication helps other members with that aspect. Similarly, the coffee farmer provides his products to the coffee-shop and the coffee-shop provides free meals and beverages to the other members. Thus, also in their sharing and exchange arrangements the informal groups are central for understanding how the firms can navigate in the borderland between formality and informality.

9.3. Results of the empirical analysis

This section discusses the main findings from the empirical analysis. The analysis investigated the same sample of entrepreneurs as in Chapter 7; for details about the dataset, the data collection, and the sampling I therefore refer to the methodology section of Chapter 7.

As mentioned before, my new definition of informal firms, uses three formality indicators for classifying enterprises; the criteria are (i) business registration, (ii) an official balance sheet, and (iii) a separate bank account. Following the new definition of (in)formality I classify enterprises in three groups: formal, informal, and trans-formal firms. I labelled those firms showing traits of both formality and informality as trans-formal; whilst informal and formal firms are those firms displaying none or all the three criteria, respectively. Table 1 provides details about the three criteria among the studied enterprises.

[Table 1]

If I were to adopt the legalist definition of informal enterprises as unregistered (or unincorporated) enterprises, I would classify 320 enterprises as formal and 80 as informal. However, such simplistic definition would require a high collinearity among the three

formality criteria, implying that all registered enterprises are also endowed with an official balance sheet and a bank account separate from the household (or from the individual). The correlation matrix displayed in Table 2 shows that the highest correlation coefficient is around 0.3, implying that there is only moderate overlap of the formality indicators. 20% are registered firms, 20% of the firms have a balance sheet and about 50% have a bank account (Table 1). The findings can be best explained by the borderland approach, i.e. based on the assumption that agents can simultaneously engage with different degrees of formality.

[Table 2]

Table 3 shows the firm classifications when I apply the three criteria. I identified 28 formal firms, 176 informal firms, and 196 trans-formal firms. Thus, trans-formal firms represent around half of the enterprises in our sample. This is in stark contrast to the results using only registration as proxy of formality, where I identified 320 informal firms (Figure 1). The result corroborates my first hypothesis (H1) that trans-formal firms represent a relevant share of the considered enterprises. Furthermore, the distribution of firms as presented in Figure 1 is in line with the findings from Chapter 8, where I detected similar proportions of trans-formal firms in other countries.

[Table 3]

[Figure 1]

The analysis then compares descriptive statistics by group to appreciate the differences among the different types of enterprise. Table 4 displays the statistics by formality status and for the overall sample.

I start by presenting the main characteristics of the entrepreneurs. A first element of variation among the groups is the age of the owner. In the overall sample the average age is 37 years. Interestingly, the average age of the owner is higher among informal businesses (39), followed by trans-formal and formal entrepreneurs; however, the difference across groups is only four years and there is a considerable variation (up to of 11 years) within each group. Informal and formal firms are more often run by women compared to trans-formal firms (28.5%). Lastly, the average education level is lowest among informal entrepreneurs and progressively increasing for trans-formal and finally formal entrepreneurs.

Next, I turn to the characteristics of the enterprises: trans-formal firms are more likely to operate in stores located in permanent structures (34%) compared to PKL (22%) and street-shops (25%). Although, on average, trans-formal firms operate more in permanent structures compared to informal enterprises, the share of those in permanent locations is substantially lower compared to formal enterprises. Furthermore, like informal enterprises, trans-formal firms show a preference towards operating in the food sector, followed by manufacturing. Thus, in terms of sectors of activity, trans-formal firms show preferences analogous to those of informal firms.

[Table 4]

A new classification by itself is of limited value if it is not linked to the economic performance of the firms. Thus, following the classification, I compared the economic performance along several dimensions. Most of the literature describes informal firms as conducting small-scale activities, very often household or subsistence activities, characterized by low levels of capital and hiring of unspecialized workforce (De Soto, 1990; 2003; La Porta and Shleifer, 2008; 2014). Contrary to this literature, I found that most of the studied trans-formal firms do not match the stereotypical characteristics of informal firms. The size (number of employees) and the average monthly revenues (expressed in current USD) are highest among formal firms, followed by trans-formal and informal enterprises. In other words, size and annual revenues increase with the degrees of formality of the business. The size varies considerably, with 2 employees working on average for an informal firm and 9 employees for a formal business. Trans-formal firms have 5 employees on average. The revenues of informal businesses are low and even below the average monthly income per capita in Indonesia which is around 550 dollars per month. Thus, although they engage in productive activities, informal firms can unambiguously be classified as survival activities (Portes and Haller, 2010; Berner et al., 2012; Grimm et al., 2012). This latter finding corroborates my intuition that trans-formal firms represent a mixture of upper tier unincorporated enterprises already identified by some scholars (Portes and Haller, 2010; Berner at al., 2012) and lower tier registered companies. The high revenues of trans-formal firms and their relatively large size implies that, despite being different from the ideal type of the mainstream entrepreneur, they have what Williams et al. (2010) describe as enterprise culture.

Concerning access to financial services and other BDS, the descriptive statistics reveal that trans-formal firms have a substantial higher access to bank loans and BDS compared to informal firms. However, again rates are substantially lower compared to formal firms. Among the trans-formal firms 33% have access to loans and 9% to BDS whereas among the formal firms 54% have access to loans and 62% to BDS. Microloans seem not to be attractive for any of the three groups.

Overall, the findings corroborate my second hypothesis (H2) that firms with a higher degree of formality display better performance (size and sales) and better access to loans and BDS. Furthermore, in line with the findings from the previous Indonesian case study (Chapter 7), I find that firms with a higher degree of formality benefit from higher policy participation (government projects) and civic engagement (trade unions or associations).

9.4. Conclusions

This chapter uses a mixed methods approach for assessing the relevance of the concept of borderland and trans-formal firms in West Java.

The analysis exploits qualitative and quantitative data from 400 Indonesian firms. After assessing the qualitative information, the analysis continues with descriptive statistics for exploring the characteristics of the three distinct groups of entrepreneurs. The findings show that trans-formal firms represent around half of the enterprises in my sample implying that they constitute a relevant share of the studied firms. This is consistent with the findings from the empirical analysis presented in the previous chapter (Chapter 8).

Concerning the characteristics of the owner and of the enterprise, I found that, on average, owners of trans-formal and formal firms have increasingly higher education levels. Trans-formal and formal firms are also more likely to operate in a store compared to PKL and street-shops. On the other hand, trans-formal firms are more spread in the food sector and show a distribution across sectors that is similar to that of informal businesses.

Concerning business performance, higher degrees of formality are associated with a larger firm size (number of employees), higher annual revenues, better access to loans and microcredit, improved access to BDS, and higher policy participation (government projects) and civic engagement (trade unions or associations).

The findings corroborate my two main hypothesis that trans-formal firms constitute a relevant share of the firms operating in the private sector, and that higher degrees of formality correspond to better performance, improved access to credit, policy participation and civic engagement.

In terms of policymaking, a more nuanced approach acknowledging the heterogeneity of informal and trans-formal firms is needed. Specifically, policies tailored to the three different groups might be more effective. For instance, trans-formal firms could be targeted with interventions aiming at unlocking their potential and improving access to loans and BDS. On the contrary, poverty alleviation interventions and microcredit lines might be more suitable instruments for promoting the integration of informal enterprises. In short, the findings call for a holistic approach to (in)formality. More studies that explore the ubiquity of the so-called informal economy and contribute to rethinking the formal-informal dichotomy could contribute to lifting Maya's veil of informality. The concept of the borderland and trans-formal firms can play a key role in achieving this objective.

Tables and Figures

Table 1: The three (in)formality indicators: descriptive statistics

Variable	N	Mean	Std. Dev.	Min	Max
Registration	400	0.2	.40	0	1
Bank Account	400	0.52	.50	0	1
Balance sheet	400	0.2	.40	0	1

Note: Author's elaboration

Table 2: Cross-correlation matrix of three (in)formality indicators

	Registration	Bank Account	Balance sheet
Registration	1.000		
Bank Account	0.2027	1.000	
Balance sheet	0.3281	0.1401	1.000

Note: Author's elaboration

Table 3: Classification of firms

	Frequency	Percentage
Informal	176	44
Trans-formal	196	49
Formal	28	7
Total	400	100

Note: Authors' elaboration

Table 4: Descriptive statistics by type of firm

Variable	Informal	Trans-formal	Formal	All	N (whole sample)
Age owner	38.98	36.43	34.43	37.4	395
	(11.55)	(11.53)	(10.54)	(11.54)	
Sex	34.09	28.57	35.71	0.315	395
	(0.48)	(0.45)	(0.49)	(0.47)	
Primary	0.13	0.05	0.00	0.084	395
	(0.34)	(0.22)	(0.00)	(0.28)	
Secondary	0.31	0.12	0.00	0.19	395
	(0.46)	(0.33)	(0.00)	(0.40)	
High school	0.34	0.38	0.25	0.36	400
	(0.47)	(0.49)	(0.44)	(0.48)	
University	0.22	0.43	0.75	0.36	400
	(0.41)	(0.50)	(0.44)	(0.48)	
PKL	0.35	0.22	0.07	0.27	400
	(0.48)	(0.42)	(0.26)	(0.44)	
Street-shop	0.35	0.25	0.00	(0.28)	400
	(0.48)	(0.43)	(0.00)	0.45	
Store	0.18	0.34	0.64	(0.29)	400
	(0.39)	(0.47)	(0.49)	0.45	
Manufacture	0.07	0.16	0.39	0.14	400
	(0.26)	(0.37)	(0.50)	(0.35)	
Garment	0.16	0.22	0.14	0.19	400
	(0.37)	(0.41)	(0.36)	(0.39)	
Food	0.53	0.38	0.29	0.44	400

Variable	Informal	Trans-formal	Formal	All	N (whole sample)
	(0.50)	(0.49)	(0.46)	(0.5)	
Services	0.07	0.04	0.07	0.06	400
	(0.25)	(0.20)	(0.26)	(0.23)	
Size	2.13	5.03	9.29	4.05	395
	(2.21)	(8.23)	(6.90)	(6.15)	
Self-employee	0.46	0.28	0.04	0.34	395
	(0.50)	(0.45)	(0.19)	(0.48)	
Annual revenue	165.17	448.88	612.67	340.58	360
	(292.04)	(1,676.54)	(866.32)	(1231.5)	
Age firm	10.81	10.14	9.43	10.38	400
	(9.11)	(8.85)	(8.61)	(8.93)	
Loan	0.18	0.33	0.54	0.03	392
	(0.38)	(0.47)	(0.51)	(0.17))	
Microfinance	0.05	0.08	0.07	0.06	398
	(0.22)	(0.27)	(0.26)	(0.25)	
BDS	0.05	0.09	0.62	0.11	396
	(0.22)	(0.28)	(0.49)	(0.31)	
Government	0.03	0.15	0.46	0.12	398
	(0.18)	(0.36)	(0.51)	(0.33)	
Association	0.14	0.21	0.50	0.2	400
	(0.35)	(0.41)	(0.51)	(0.4)	
Cooperatives	0.06	0.08	0.18	0.08	400
	(0.24)	(0.27)	(0.39)	(0.27)	

Note: Standard errors in parentheses.

Figure 1: Dichotomist vs Borderland approach
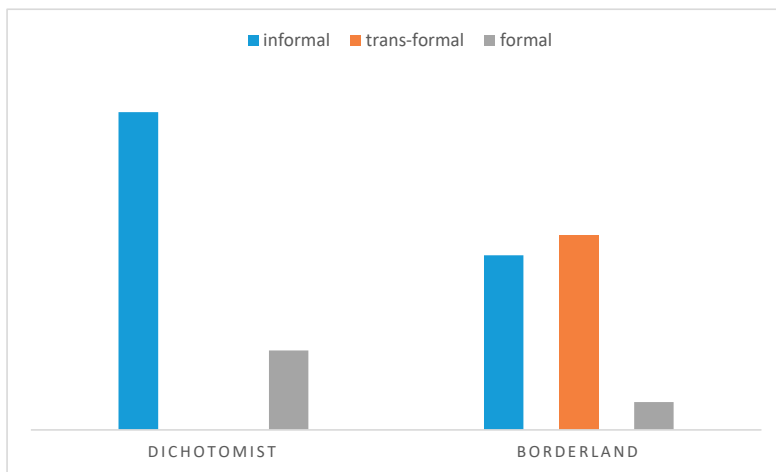
Note: Author's elaboration

10. Conclusions

This thesis presented an investigation exploring various features related to business formalization. This research offers evidence that questions the push for business formalization in developing countries and the underpinning dichotomist representation of the so-called informal enterprises. In the first part of the manuscript, the research tries to go beyond the discourse around business formalization by analysing the existing empirical literature. Specifically, the research systematically assesses two features that are central to the discourse on business formalization. First, it explores the effects of various policy actions that encourage business formalization on actual formalization. Second, it investigates the effects of formalization on the performance of informal firms that have switched to a formal business status. To study these aspects, chapters 3 to 6 employ meta-analytical tools for examining the existing evidence.

First, the meta-analytical exercise shows that formalization policies have limited effects on business formalization. Nonetheless, policy interventions improving the benefits associated with formalization are more effective compared to policies cutting the costs of formalization or increasing the level of enforcement. Another interesting element emerging from the analysis is that small-scale experiments tend to be more successful than large-scale policy reforms. Yet, this finding implies that it is difficult to replicate the successes of experiments and pioneering actions on a large scale.

Second, the meta-analytical exercise provides important insights for the theories of formalization. The analysis allows to assess competing theories about business formalization. The data do not support the theoretical predictions of the dual economy model due to the heterogeneity of the informal sector. The second feature explored in Part 1 is whether formalization improves firm performance. Theoretically, formalization is supposed to be beneficial as it enhances business revenues, access to loans and other business development services, and it ameliorates the working conditions of employees. Yet, the empirical findings indicate that, on average, all these theoretically envisioned improvements are small. The effects are particularly small for those firms who spontaneously opt to formalize without any external intervention (self-induced formalization) as found in Chapter 6. This can be explained by the fact that entrepreneurs who opt for business formalization are those already close to their optimal size and mode of operation. Taken together, the findings from the four

meta-analyses – in particular the limited overall impact of the formalization policies and the small performance gains associated with business formalization – suggest that firms take their decision based on a cost-benefit analysis as outlined by the rational exit model. Putting it differently, the low benefits of formalization partially explain the average small effects of policy actions. This is further supported by the fact that policy interventions improving the benefits of formalization are on average more effective than other actions.

Put differently, the meta-analytical exercise highlights two issues related to the discourse around formalization. First, de-regulation and higher enforcement are not the most effective instruments for promoting business formalization; informality is not uniquely driven by the desire of cutting costs of regulation and avoiding taxation. Second, business formalization involves modest effects on firm performance and cannot be seen as a boost for achieving economic development unless accompanied by other measures.

The second part of the research challenges the discourse around the so-called informal enterprises by outlining a new theoretical approach. Part 2 starts with a case study of Indonesian entrepreneurs with the aim to disentangle the decision-making around business registration and to identify the characteristics of unregistered enterprises (Chapter 7). The research then elaborates theoretical and analytical tools for overcoming the formal-informal dichotomy and empirically assesses these instruments with a cross-country study (Chapter 8) and a second case study about Indonesia (Chapter 9). To this end, the research proposes a new theoretical approach based on the notion of borderland and informal economy.

The first Indonesia case study (Chapter 7) is motivated by the gap identified in Part 1. After assessing the existing theories on secondary meta-data, I considered it necessary to conduct interviews in the field and to discuss directly with the owners of unregistered businesses the reasons underpinning their preference to operate informally. I conducted a survey among 400 enterprises to study the characteristics of unregistered enterprises. The findings indicate that the most common reasons for not registering are perceived necessity (whether formalization is seen as necessary for conducting the business) and the expected benefits. Interestingly, unregistered enterprises consider themselves as disadvantaged. They indicate that they have limited policy participation and civic engagement, which feeds into their negative attitudes towards the government. The government is perceived as absent. Yet, far from being passive actors, unregistered enterprises exploit informal networks for coping with the (perceived) institutional gap and for accessing markets.

The final step of the research project consists in elaborating a new approach to informality based on the notion of borderland and trans-formal firms. The approach draws on the 2002 ILO report and argues for the existence of a borderland where the formal and informal economy overlap. The borderland means that firms can simultaneously engage with different levels of (in)formality, identifying trans-formal firms that are neither purely formal nor purely informal. The new approach is then tested exploiting data from WBIES about firms operating in 19 developing countries. The findings reveal the prominence of hybrid entrepreneurial forms among the informal sector of the considered countries and show that the trans-formal firms studied correspond to a segment of upper-tier entrepreneurs in the informal sector.

Finally, the research further corroborates the approach with a case study of 400 Indonesian enterprises. In this study I assess the relevance of trans-formal firms among both formally registered and informal firms. The findings indicate that trans-formal entrepreneurs represent roughly half of the enterprises studied. The results further reinforce that entrepreneurs' education, business size as well as firm revenues and access to credit increase with the degree of formality. In other words, trans-formal firms represent a sort of missing middle between informal and formal enterprises.

What are the policy implications of all the evidence presented? The consolidated evidence stemming from this thesis shows that, despite the efforts put in place by policymakers, formalization policies have had a limited impact on formalization of already existing firms. Additionally, formalization of informal firms involves modest advantages for informal firms switching formality status. Therefore, policymakers can opt for one of two distinct approaches: 1) insist on the need for formalization and follow up with more nuanced policies or 2) elaborate new approaches to informality.

If formalization of informal enterprises remains the main objective, policies should focus on creating incentives such as facilitating access to credit and other business development services. This is particularly desirable considering that policy interventions that aim at improving the benefits of formalization have been identified as most successful. For instance, interventions that accompany the registration with a package of actions ranging from mediating meetings with banks to improved access to credit, training sessions, and promoting access to business services, are a good place to start. Furthermore, adopting a group approach that targets informal associations and groups of informal entrepreneurs could be a suitable

solution while containing costs. Lastly, targeting specific sub-groups such as self-employees or particular boom sectors could be a key strategy for boosting firm formalization.

While the modification of existing interventions seems like an appealing approach, if read carefully, the results call rather for a new policy approach, different from the exclusive focus on the formalization of informal enterprises. Formalization policies based on the formal-informal dichotomy that do not recognise the heterogeneity of firms navigating in the borderland between formality and informality seem outdated. Policies that focus on raising or lowering the borderline between the formal and informal economy, and on formalization through institutional reform and revision of the fiscal framework, are ineffective against this backdrop. Firms are not passive actors that can simply be moved from one category into another by fiat.

Given the heterogeneity of informal and trans-formal enterprises, it seems crucial to understand and address the different priorities of informal and trans-formal agents. For instance, implementing growth policies for entrepreneurs engaged in survival activities could be ineffective. At the same time, implementing poverty alleviation policies or micro-credit lines for market-oriented informal and trans-formal firms might be unattractive for them as well. It seems that we need even better tailored policies that do justice to the heterogeneity of enterprises.

Policies and interventions need to address the specific potential characterizing the borderland and its actors. In this regard, policies and practices recognising the borderland and trans-formal firms are a first important step. An inclusive development process holds the promise of being more effective in generating both local infrastructure development and community cohesion as the owners of trans-formal firms can make use of their contextual knowledge and provide both economic and political leadership at local level. In this regard, there is a need for improving policy participation and civic engagement among informal and trans-formal entrepreneurs. This can be achieved by implementing initiatives targeted to informal entrepreneurs and involving informal associations in the policy-making process. Policies interlinking the formal and the informal economy are also more likely to support processes and dynamics in the borderland that can be promoted free from dichotomist perspectives.

Summing up, the research has demonstrated that policies seeking formalization have limited effects. Furthermore, the findings challenge the assumption that formalization boosts

business performance and the dichotomous representation of a homogeneous informal sector consisting of survival and marginal activities. The research represents a first step for developing a new heuristic that needs to be further corroborated by future studies.

Further research could exploit panel data following the same enterprises over the time. This would allow for control of the confounding unobserved factors that could explain the decision of business registration. Furthermore, panel data would allow to gain more insights about the mobility of enterprises over time and how they dynamically navigate in the borderland between formality and informality. If further research and policy actions follow the path outlined in this manuscript so as to develop it further, this thesis would accomplish its most desired aim, impact on and contribution to research and policy making.

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About the author

Andrea Floridi is a PhD Candidate at International Institute of Development Studies-Erasmus University Rotterdam (ISS-EUR) and expert in evaluations of International cooperation projects. He obtained a bachelor's degree in Development Economics at La Sapienza University in 2010 and a Master Advanced *cum laude* in Development Studies at La Sapienza University in 2013. He then completed a Master in Arts in Development Economics in 2014 at ISS-EUR.

His research interests range from informal economy to entrepreneurship in low and middle-income countries; from development economics to labour economics; from institutions to economic behaviours; and from systematic reviews to meta-regression analysis. Furthermore, he is genuinely passionate about the debate around epistemology and methodology in social science.

Andrea has experience as researcher expert in informal entrepreneurship and in evaluation of International cooperation initiatives and projects aiming at strengthening the private sector (such as credit line, training, and economic integration programs). He conducted evaluations in Europe, West Africa, North-Africa, Middle-East, Central America, and South-East Asia.

He published articles in academic journals such as Journal of Labor Economics and Journal of Applied Economics Letters; and one book chapter published by Springer. Furthermore, he published evaluations in the OECD website, and in the Italian Cooperation website.

PhD Portfolio

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1. **EDUCATION**
- From October 2015 to 9 December 2021: PhD researcher at ISS- International Institutes of Social Studies, Erasmus University of Rotterdam- EUR. The Hague, The Netherlands.
- From September 2013 to November 2014: Master in Arts in Development Studies, "Economics of Development- ECD". The Hague, The Netherlands.
- From January 2011 to January 2013: Master Advanced *cum laude* in '*Development Science and International Cooperation*' at La Sapienza University of Rome, Inter-Faculty of Political Science and Economics. Rome, Italy.
- From September 2007 to December 2010: Bachelor in '*Economics for International Cooperation and Development*' at La Sapienza University of Rome, Faculty of Economics. Rome, Italy.

2. **PUBBLICATIONS**

Journal articles
- Floridi, A., Demena, B. and Wagner, N., (2021). The bright side of formalization policies! Meta-analysis of the benefits of policy-induced versus self-induced formalization. *Applied Economics Letters*, 1-6. DOI: https://doi.org/10.1080/13504851.2020.1870919
- Floridi, A., Demena, B. and Wagner, N., (2020). Shedding light on the shadows of informality: A meta-analysis of formalization interventions targeted at informal firms. *Labour Economics*, *67*, 101925. DOI: https://doi.org/10.1016/j.labeco.2020.101925

Book Chapters
- Demena, B., Floridi, A., Wagner, N., (2022) '*The Short-term Impact of COVID-19 on Labour Market Outcomes: Comparative Systematic Evidence*'. In Papyrakis, E., et al. 'Covid-19 and International Development', *Springer International Publishing*. https://www.springer.com/gp/book/9783030823382

3. **OTHER OUTPUTS**

Working papers
- Floridi, A., Demena, B. and Wagner, N., (2019). Shedding light on the shadows of informality: A meta-analysis of formalization interventions targeted at informal firms. *ISS Working Paper Series/General Series*, *642*(642), pp.1-37. URL: hdl.handle.net/1765/115137.
- Floridi, A., Wagner, N. and Cameron, J., (2016). A study of Egyptian and Palestine trans-formal firms–A neglected category operating in the borderland between formality and informality. *ISS Working Paper Series/General Series*, *619*(619), pp.1-25. URL: hdl.handle.net/1765/80085.

Evaluations and Reports:
- Evaluation Report "Fronteras Abiertas: interregional network for cross-border cooperation and Latin American integration", 2012 (http://www.oecd.org/derec/italy/Evaluation-of-Fronteras-Abiertas-Project-Interregional-Network-for-Cross-Border-Cooperation-and-Latin-American-Integration.pdf)
- Independent evaluation report of the three following projects: 1. Credit Line for Small and Medium Enterprises in Tunisia; 2. Programme of Development of Private Sector to sustain Small and Medium Enterprises through the Private Banking system in Occupied Palestinian Territory; 3. Programme of support to Small and Medium Enterprises in Egypt, 2013 (http://www.oecd.org/derec/italy/Evaluation-of-Credit-Lines-to-Support-SMEs-in-Tunisia-Egypt-and-Palestine.pdf)
- Evaluation of different methods of access to aid credit and to the development of informal sector in Egypt and Palestinian Territories

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Blog contributions:
- May 2016: Beyond formalization. Towards an inclusive approach to informal economy. INCLUDE PLATFORM. https://includeplatform.net/blog/beyond-formalization-towards-an-inclusive-approach-to-the-informal-economy/

4. **WORK IN PROGRESS**
- Floridi, A., Demena, A., D., and Wagner, N. '*There's many a slip twixt cup and lip. Comparative meta-analysis of field experiment vs observational studies'*.
- Floridi, A., Demena, A., D., and Wagner, N. '*A game worth the candle? A meta-analysis of the effects of formalization on firm performance'*.
- Floridi, A., Demena, A., D., and Wagner, N. '*A meta-analysis of the Impact of COVID-19 on Labour Market Outcomes'*.
- Floridi, A., Wagner, N., Cameron, J., Murshed, S., M. '*Opening the Panodra's box of business registration. Evidence from three West Javanese Cities*'.
- Floridi, A. 'Trans-formal firms – a neglected category operating in the borderland between formality and informality'.
- Floridi, A. '*Opening the Pandora's box of business registration: Evidence from firms in West Java, Indonesia*'.
- Floridi, A. '*Lifting Maya's veil of the informal economy or the borderland and trans-formal firms in West Java'*.

5. **SEMINARS AND CONFERENCES**
- From 9th to 11th July 2019: 6th International Shadow Economy Conference; Trento University
- From 6th to 8th September 2016: 5th PhD Conference on Development Studies; Norwich University
- 22nd June 2016: Seminar on invitation: Presentation of Working Paper; Sheffield University

6. **TEACHING ACTIVITY**
- From March 2021 to present: Teaching assistant in the course: "Research paper in the economics of development", at International Institute of Social Studies-ISS, EUR
- From March 2015 to July 2015: Teaching assistant in the course "Evaluation of Development Policy, Programmes and Projects", at International Institute of Social Studies-ISS, EUR

7. **VISITING RESEARCH AND EXCHANGE**
- September 2017- June 2018: Visiting PhD researcher at Sapienza University of Roma, Department of Economics.

8. **HONOURS AND AWARDS**
- 22nd April 2013: Prize Excellent Graduate Sapienza 2011/2012 award Faculty of Political Science, Sociology, and Communication; Foundation for the promotion of study and research La Sapienza (Fondazione per la promozione dello studio e della ricerca La Sapienza)
- 14th January 2014: Statement of Merit, Prize Enrico Augelli

9. **OTHER ACTIVITIES**
- 18th October 2019: Organizing committee "International conclave on Justice and Accountability for Rohingya"; 18th October 2019, at International Institute of Social Studies (The Hague)
- From April 2016 to January 2017: PhD representative at Research Doctoral Committee- RDC, ISS-EUR
- From October 2018 to September 2021: PhD representative at Development Economics research groups, ISS-EUR

Curriculum vitae

1. **Family name and first name:** Mr. Floridi Andrea
2. **Date of birth:** 6 October 1987
3. **Nationality:** Italian

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5. **LANGUAGE SKILLS:** competence on a scale of 1 to 5 (1 - excellent; 5 – basic)

Language	Reading	Speaking	Writing
Italian	mother tongue		
English	1	1	1
French	1	2	2
Spanish	1	2	2

6. **KEY QUALIFICATIONS:**
Expert in evaluation of International cooperation and development projects in Latin-America, Middle East North Africa, and Sub-Saharan Africa.
Expert in informal economy and informal entrepreneurship.
Expert in systematic reviews and meta-analysis techniques.
Excellent statistic data elaboration and analysis capacities.
Excellent capacity of managing primary data (sampling, collection, and coding)
Consolidated experience in conducting in depth interviews and focus group discussions.
Good knowledge of econometrics models and technics.
Good knowledge of qualitative methods of analysis
Excellent knowledge of the main development economics paradigms, theories, and models.
Excellent communication skills.

7. **OTHER SKILLS:** (e.g. Computer literacy, etc.)**:**
Good command of the statistic software STATA
Basic knowledge of the statistic programs R, and SPAD
Excellent command of Microsoft Office™ tools.
Excellent command of the statistic and economic database FAOSTAT, Eurostat, and World Bank.
Good command of the informative system GIS (Geographic Information System).
ECDL (January 2014)

8. **PROFESSIONAL EXPERIENCE**
From November 2021 to April 2022: Associate researcher in the frame of a meta-anlaysis on the effcts of Covid on employment. Employer: International Institute of Social Studies-ISS, EUR Erasmus University of Rotterdam.
From March 2021 to present: Teaching assistant for the course: "Research paper in the economics of development", at International Institute of Social Studies-ISS, EUR
From January 2013 to present: Associate researcher at the Department of preparatory studies and development policies at STEM-VCR srl.
From September 2019 to October 2019: Organization Committee of the "International conclave on Justice and Accountability for Rohingya"; at International Institute of Social Studies (The Hague). Employer: Centre for Peace and Justice (BRAC University) and International Institute of Social Studies- ISS (Erasmus University of Rotterdam- EUR).
From June 2017 to August 2017: PhD researcher expert in informal economy in the frame of a study on the determinants of informal entrepreneurship in West Java. Collection of primary data with structured questionnaires, in depth interviews, and Focus Group Discussions with groups of

entrepreneurs. <u>Employer</u>: International Institute of Social Studies-ISS, EUR Erasmus University of Rotterdam.

From June 2016 to August 2016: PhD researcher expert in informal economy in the frame of a study on the characteristics of the Indonesian informal sector. <u>Employer</u>: International Institute of Social Studies-ISS, EUR Erasmus University of Rotterdam.

From March 2015 to October 2015: Research assistant in the frame of the project "Support to enhance livelihoods for people dependant on informal economy and improve social inclusion of marginalised and vulnerable persons" (EuropeAid/135649/DH/SER/Multi). <u>Employer</u>: ARS progetti srl on behalf of DEVCO.

From March 2015 to July 2015: Teaching assistant for the course "Evaluation of Development Policy, Programmes and Projects", at International Institute of Social Studies-ISS, EUR.

March 2015: Mapping of civil society and private sector in Egypt. <u>Employer</u>: STEM-VCR srl on behalf of DEVCO in Egypt.

November 2014: collaboration to the development of the questionnaire for the evaluation of ORIO Project "ORIO10/TZ/01 Electrifying Rural Tanzania" finalized to the strengthening of SMEs through electrification of rural areas in Tanzania. <u>Employer</u>: International Institute of Social Studies-ISS, EUR Erasmus University of Rotterdam on behalf of Ministry of Foreign Affairs Netherlands (Traineeship).

From December 2013 to October 2014: Study on Civil Society Organizations, financed by African Development Bank (ADB) in the 54 Countries of the African Continent, finalized to the creation of a Data Bank for the involvement of these organizations and the realization of the Strategy 2013-2022 of the ADB. <u>Employer</u>: STEM-VCR srl, on behalf of the African Development Bank.

From November 2013 to February 2014: Evaluation activities of MAE-DGCS, evaluation of different methods of access to aid credit and to the development of informal sector in Egypt and Palestinian Territories. <u>Employer</u>: STEM-VCR srl, on behalf of Italian Ministry of Foreign Affairs-General Direction Cooperation and Development (MAE-DGCS).

From March 2013 to April 2013: Evaluation "Review of the effectiveness of the Non State Actors Programme in the Occupied Palestinian Territory 2007-2011". <u>Employer</u>: STEM-VCR srl on behalf of European Commission.

From December 2012 to April 2013: Evaluation of International cooperation projects. Expert in evaluation and in informal economy, in the framework of the independent evaluation of the three following projects: 1. Credit Line for Small and Medium Enterprises in Tunisia; 2. Programme of Development of Private Sector to sustain Small and Medium Enterprises through the Private Banking system in Occupied Palestinian Territories; 3. Programme of support to Small and Medium Enterprises in Egypt. <u>Employer</u>: STEM-VCR srl, on behalf of MAE-DGCS.

From December 2012 to November 2013: Evaluation in the framework of the study "Meta-Evaluation" finalized to the individuation and definition of procedures and methodologies to inform the evaluation activities *in itinere* and ex post of the cooperation projects financed by MAE-DGCS. <u>Employer</u>: STEM-VCR srl, on behalf of Italian Ministry of Foreign Affairs (MAE-DGCS).

From February 2012 to June 2012: Expert in evaluation and in informal economy in the framework of the evaluation of the project "Fronteras Abiertas" in South and Centre America. Data collection and interviews on the field in Honduras, San Salvador, Guatemala, and Nicaragua. Collaboration to the final report. <u>Employer</u>: STEM-VCR srl, on behalf of Italian Ministry of Foreign Affairs (MAE-DGCS).

November 2011: Expert in economics of development and informal economy in the framework of the presentation on development policies in environmental politics and economics for cooperation and development. <u>Employer</u>: STEM VCR srl (traineeship).

From June 2009 to August 2009: Economist researcher in the framework of the research "Crisis and perspectives for the Shrimp Value-Chain in Benin. Research design, data collection, Focus Groups Discussions and interviews on the field in Benin, data analysis, and writing report. <u>Employer</u>: AMF Consulting srl.