A Behavioral Theory of Firm Formalization

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Selorm Agbleze

Copenhagen, December, 2021

Abstract

Firm formalization refers to the process by which unregistered firms register with the relevant authorities and comply with the applicable rules and regulations associated with business and tax. Informal firms – unregistered firms or firms hidden from taxation and regulation - contribute substantial portions to the GDP and employment, especially so in emerging and developing markets. However, they are also responsible for disproportionate shortfalls in tax revenues, precarious working conditions, and environmental pollution. Efforts to formalize these firms have met with limited success because, this thesis posits, the focus on the costs and benefits of formalization has led to an elusive understanding of firms' formalization decisions. Guided by the question - how does the bounded rationality of the decision-makers shape firm formalization decisions?, this thesis seeks to improve our understanding of when and why informal firms formalize.

To this end, the thesis consists of three research papers that employ different methodologies and data. The first paper draws on prospect theory to propose a behavioral framework of firm formalization decisions. The second paper uses the behavioral theory of the firm and institutional theory to investigate how financial performance and legitimacy aspirations jointly influence formalization decisions in times of economic disruption. The third paper draws on the behavioral theory of the firm and social embeddedness theory to examine the influence of social embeddedness on the relationship between firm financial aspirations and formalization.

The thesis argues that the formalization decision includes multiple, interrelated variables that create interdependencies between the formalization decision and other decisions facing the firms' decision-makers. The limited ability of decision-makers to include and process all relevant variables into the decision process means that the formalization decision is a risky and uncertain decision driven by bounded rationality. A complete understanding of firm formalization decisions must account for the behavioral mechanisms that are triggered by decision-makers' bounded rationality. Furthermore, improvements in the knowledge of the formalization decision should translate to progress in the design and implementation of formalization policies.

Resumé

Virksomhedsformalisering er processen hvor uregistrerede virksomheder bliver registrerede hos de relevante autoriteter samt lever op til de gældende regler og reguleringer i forbindelse med virksomhedsdrift samt skatter og afgifter. Uformeller virksomheder som er uregistrerede eller gemt for skatte- og reguleringsmyndigheder udgør en anseelig andel af GDP og beskæftigelse specielt i nye markeder og udviklingsmarkeder. Disse uformelle virksomheder står for disproportionalt store andele af tabte skatteindtægter, usikre arbejdsforhold, samt miljømæssig forurening. Forsøg på at formalisere disse virksomheder har haft begrænset succes, fordi som denne afhandling foreslår, at fokus på omkostninger og fordele ved formalisering har ledt til en begrænset forståelse af virksomheders formaliseringsbeslutninger. Med spørgsmålet – hvordan kan afgrænset rationalitet hos beslutningstagere forme virksomheders formaliseringsbeslutninger – som rettesnor, forsøger denne afhandling at forbedre vores forståelse af hvornår og hvorfor uformelle virksomheder bliver formaliserede.

Afhandlingen består af tre forskningsartikler, som baserer sig på forskellige metoder og data. Den første artikel drager nytte af udsigtsteori (prospect theory) til at foreslå et adfærdsmæssigt rammeværktøj (behavioral framework) for formaliseringen af virksomheder. Den anden artikel bruger virksomhedsadfærdsteori (behavioral theory of the firm) og institutionaliseringsteori (institutional theory) til at undersøge hvordan finansielt udbytte samt legitimitets aspirationer tilsammen påvirker formaliseringsbeslutninger i en periode med makroøkonomisk forstyrrelse (disruption). Den tredje artikel læner sig op ad virksomhedsadfærdsteori (behavioral theory of the firm) og social indlejringsteori (social embeddedness theory) for at undersøge forholdet mellem social indlejring (social embeddedness) samt finanselle aspirationer og formalisering.

Denne afhandling foreslår at formaliseringsbeslutningen indebærer mange indbyrdes forbundne variable som skaber gensidige afhængigheder mellem formaliserings-beslutningen og andre beslutninger som virksomhedens beslutningstagere står overfor. Den begrænsede evne hos beslutningstagere til at inkludere og overveje alle relevante variabler i beslutningsprocessen betyder at formaliseringsbeslutningen er risikabel samt drevet af begrænset rationalitet. En komplet forståelse af virksomhedsformaliseringsbeslutninger skal redegøre for de adfærdsmæssige mekanismer som udløses af beslutningstageres afgrænsede rationalitet. Forbedringer af vores viden omkring formaliseringsbeslutninger bør føre til forbedringer i designet og implementeringen af formaliseringspolitikker.

Contents

Chapter 1

A BEHAVIORAL THEORY OF FIRM FORMALIZATION: AN INTRODUCTION

1.0 PURPOSE OF THE THESIS

This thesis focuses on informal firms' formalization decisions. Informal firms refer to business ventures that are not registered with and or/do not comply with relevant regulatory authorities of the countries in which they operate (Maffei, 2018; Williams, Martinez-Perez, & Kedir, 2017). Formalization refers to the process by which informal firms register with the relevant authorities and comply with the applicable rules and regulations associated with business and tax (Godfrey, 2011; Siqueira, Webb, & Bruton, 2016). Informal firms abound across the world's various economies, contributing about 32% of GDP and 60% of jobs globally (ILO, 2019; Medina & Schneider, 2018). On the flip side, informal firms are responsible for a disproportionate percentage of precarious working conditions, environmental pollution, and shortfalls in countries' tax revenue (Blackman et al., 2006; ILO, 2018; Levy, 2008). The paradoxical effect of informal firms on countries' economies means governments and non-governmental agencies have sought to formalize them. Successfully formalizing informal firms means that countries can preserve the firms' contribution to the economy and job creation while minimizing the negative externalities of their operations.

However, various interventions to formalize informal firms have met with limited success (Bruhn, 2011; de Mel, McKenzie, & Woodruff, 2013; Galiani, Meléndez, & Ahumada, 2017). Interestingly, many of the interventions have focused on reducing the costs of registration and improving the benefits of formalization (e.g., Benhassine, McKenzie, Pouliquen, & Santini, 2018; de Andrade, Bruhn, & McKenzie, 2016; de Mel et al., 2013). This approach is based on the current understanding that firms operate informally as a rational choice motivated by the high cost of registering and operating formally relative to the benefits (Blackman, 2000; de Soto, 1989; Perry, Maloney, Arias, Fajnzylber, & Saavedra-chanduvi, 2007; Siqueira et al., 2016). "While providing valuable insights, the focus on…economic (dis)incentives that encourage or discourage a legal transition to formal markets has led to an incomplete understanding of how formalization unfolds"(Sutter, Webb, Kistruck, Ketchen, & Ireland, 2017: 421).

Formalizing firms have to consider factors that go beyond the financial cost of registering and paying taxes. Formalization means the firm has to align its operations to the rules and regulations that govern formal businesses, which may be substantially at odds with what the business owner/manager and the firm are used to and know how to do. For example, an informal firm may have to change its reliance on trust and word-of-mouth in dealing with supply chain members to rely on detailed contractual agreements. Quality checks that are frequently done by visual inspections and/or touch in informal transactions have to be replaced with compliance with legal standards (Godfrey, 2011; Nelson & De Bruijn, 2005; Sutter et al., 2017). Such changes in firms' modus operandu mean that firms must include the implications of formalization in future decision making and in their dealings with their stakeholders. Changes in quality standards, for example, mean that the firm may need to replace longstanding suppliers with new ones that can meet the new legal standards. A formalizing inform firm undergoes all these changes while facing the regularly unstable policy environment that exists in countries with large informal economies (Narula, 2020). Thus, given the number of factors involved, the extensive interdependence among these factors, and the policy environment's unpredictability, it is difficult for decision-makers to accurately specify the costs and benefits of their formalization decisions owing to bounded rationality (Miller & Wilson, 2006; Simon, 1972).

This thesis, therefore, sets out to understand the formalization decision from a behavioral decision-making perspective based on decision makers' bounded rationality. To achieve this objective, the thesis conceptualizes formalization as a risky and uncertain decision. In the face of uncertainty, decision-makers rely on satisficing conditions rather than rational optimizations (Simon, 1972). Hence rather than rational cost-benefit optimizations, owners and managers are more likely to rely on simplified judgment criteria to make their formalization decisions. In this respect, the questions that arise include, what criteria do decision-makers in informal firms use for their formalization decision? Do the criteria vary among different informal firms? How do the characteristics of individual firms influence the response to feedback from these criteria? How do decision-makers respond to feedback from these criteria under varying levels of uncertainty? The thesis consists of three different papers, organized as independent chapters, each of which investigates aspects of the formalization decisions of informal firms. On the whole, the three chapters are guided by the central question; How does the bounded rationality of the decision-makers shape firm formalization decisions?

The rest of the introductory chapter is organized into two parts; the first part positions the thesis in the context of ongoing research on the informal economy and firm formalization. The next part then presents a summary of the three papers included in the thesis highlighting the research questions and methods.

1.1 CONTEXTUALIZING THE THESIS

"Since the mid-1970s, almost every jazz musician has owned a copy of the same book. It has a peach-colored cover, a chunky, 1970s-style logo, and a black plastic binding. It's delightfully homemade-looking—like it was printed by a bunch of teenagers at a Kinkos. And inside is the sheet music for hundreds of common jazz tunes—also known as jazz "standards"—all meticulously notated by hand. It's called the Real Book.

But if you were going to music school in the 1970s, you couldn't just buy a copy of the Real Book at the campus bookstore. Because the Real Book… was illegal. The world's most popular collection of jazz music was a totally unlicensed publication. It was a self-published book created without permission from music publishers or songwriters. It was duplicated at photocopy shops and sold on street corners, out of the trunks of cars, and under the table at music stores where people used secret code words to make the exchange. And as the number of students in elite conservatory jazz programs continued to swell over the next few decades, the Real Book…became the de-facto textbook for this new legion of jazz students. The unofficial official handbook of jazz." (99% Invisible, 2021)

Like the Real Book, the unofficial official economy of many developing countries is the informal economy. The informal economy consists of market-based activities conducted by unregistered firms or by registered firms but hidden from taxation and regulation (De Castro et al., 2014; La Porta & Shleifer, 2008; Mcgahan, 2012). Hence, the informal economy is essentially illegal. The term "informal economy" was coined by Keith Hart in his 1973 study of economic activities by Frafra immigrants in Accra, Ghana. However, formal models explaining the existence of this economy include the 1954 Dual economy model by Nobel Laureate Sir William Arthur Lewis (Darbi, Hall, & Knott, 2018; Godfrey, 2011). Across the developing world, the informal economy contributes as high as 62.3% of GDP (Medina & Schneider, 2018) and 90% of employment in some countries (ILO, 2019). The phenomenon of informality, however, cuts across the globe.

Godfrey (2011, 234) argues that "the domain of the informal economy covers a conceptual area from the dusty developing country bazaar to the pristine developed country boardroom". Indeed, the informal economy accounts for an average of 31.9% of global GDP (Medina & Schneider, 2018) and about 62% of the active workforce across the world (ILO, 2019). The illegal nature of this far reaching economy mean that players are able to skip rules and regulations governing property rights, taxation and labour. Thus, the poor working conditions of many informal economy workers, and the losses in revenue in the form of royalties to individuals and taxes to governments mean that the existence of informal economy is also associated with significant negative externalities (Blackman et al., 2006; International Labour Office (ILO), 2018; Levy, 2008).

In terms of research, studies in the informal economy have long been the domain of economics, sociology, and anthropology (Godfrey, 2011; Godfrey, 2015). These fields have focused on defining size and features of the informal economy (e.g., Xaba, Horn & Mortala, 2002; Portes and Haller, 2005; Vanek et al., 2012) and the drivers or causes of informality (e.g., de Soto 1989, 2000). Other studies have focused on the consequences of informality (e.g., for welfare or productivity) and the linkages between informality and the concepts of development, poverty and inequality (Chen, 2007; Gutiérrez-Romero, 2021; Ulyssea, 2018). From these perspectives, the informal economy comes about as a result of minimal social protection from the state and increased outsourcing and subcontracting aimed at reducing production costs (Williams, Shahid, & Martínez, 2016). Such constraining factors exclude individuals from the formal economy and drive them to start informal firms as a survival strategy, that is, serving the need for personal survival or provision for the family (de Soto, 1989; Hart, 1973). On the other hand, individuals may make voluntary decisions to operate in the informal economy as a result of high tax rates, public sector corruption, or cumbersome bureaucracy (de Soto, 1989; Godfrey, 2011). Further, several studies have been from especially the development economics discipline, investigating policy interventions aimed at formalizing informal firms (e.g., Campos, Goldstein, & Mckenzie, 2018; Fajnzylber, Maloney, & Montes-Rojas, 2011; Galiani et al., 2017; Monteiro & Assunção, 2012).

Research on the informal economy in the management discipline has been closely related to those from the economics discipline. Studies have focused on defining and theorizing the informal economy (Godfrey, 2011; Webb, Tihanyi, Ireland, & Sirmon, 2009), defining the features and drivers (Hipsher, 2020; Thai & Turkina, 2013, 2014; Webb, Bruton, Tihanyi, & Ireland, 2013; Webb, Pryor, & Kellermanns, 2015) and the link between informal economy and welfare and poverty (London, Esper, Grogan-Kaylor, & Kistruck, 2014; Mutungi & Ghaye, 2020). However, at the firm level, management research has also investigated the effect of the competition from informal firms on innovation, corruption, and firm performance among formal firms (Iriyama, Kishore, & Talukdar, 2016; McCann & Bahl, 2017; Pérez, Yang, Bai, Flores, & Heredia, 2019; Piperopoulos, Kafouros, Aliyev, Liu, & Au, 2021) and the effect of informality and formality on firm legitimacy and performance (Assenova & Sorenson, 2017; Kistruck, Webb, Sutter, & Bailey, 2015).

Interestingly, there has been a recent increase in studies seeking to understand the formalization decisions of informal firms (e.g., Dau & Cuervo-Cazurra, 2014; Ram, Edwards, Meardi, Jones, & Doldor, 2019; Sutter et al., 2017). Research from the institutional perspective has highlighted the effect of macroeconomic variables including burdensome taxes, and the cost of regulatory compliance (Dau & Cuervo-Cazurra, 2014; De Castro et al., 2014), the quality of governance in a country (Thai & Turkina, 2014) and societal-level distrust for formal institutions (Williams et al., 2017; Williams & Shahid, 2016). Studies from the individual and firm-level perspectives have highlighted the influence of the gender of owner/managers (Thapa Karki, Xheneti, & Madden, 2020; Xheneti, Madden, & Thapa Karki, 2019), the age of owner/manager, or the age of informal firm (Williams et al., 2016) and the level of human capital and entrepreneurial orientation of owner/managers (Grimm, Knorringa, & Lay, 2012). Other findings have pointed to the influence of firm innovation, identification of high-growth opportunities (Nguyen, Verreynne, & Steen, 2014; Williams & Martinez, 2014), firm financial performance, and firm growth (Cruz, Justo, & De Castro, 2012; Gelb, Mengistae, Ramachandran, & Kedia Shah, 2009; Nelson & De Bruijn, 2005; Ulyssea, 2018).

Despite the important contributions of the growing literature on firm formalization decisions, "an implicit assumption has been that formalization occurs based on a straightforward rational consideration of the benefits relative to the costs" (Sutter, Webb, Kistruck, Ketchen, & Ireland, 2017: 421). The expectation is that informal firms will formalize when superior performance translates into the ability to cover the transaction costs of formalization or if it becomes too costly for the firms to remain informal or to be detected by regulators (Gelb et al., 2009; Nelson & De Bruijn, 2005; Nguyen et al., 2014). This thesis takes a point of departure by arguing that the rational cost-benefit argument is an overly simplistic representation of a complex decision. Additionally, the rational cost-benefit view overstates the ability of decision-makers of informal firms to accurately estimate the costs and benefits of formalizing (Assenova & Sorenson, 2017). The thesis argues that the formalization decision includes multiple and interrelated variables that create interdependencies between the formalization decision and other decisions facing the firms' decision-makers. The limited ability of decision-makers to include and process all the relevant variables and their interrelations into the decision process means that the formalization decision is an uncertain decision driven by bounded rationality (Gavetti & Levinthal, 2000).

Further, the study focuses on contexts in which weak formal institutions are substituted by robust informal institutions. Formal institutions - the formalized laws, regulations, and systems (North, 1990) provide constraints and incentives that promote lawful behavior and relevant apparatuses to support formal market exchange (Webb, Khoury, & Hitt, 2019). The absence or limited enforcement of formal institutional arrangements thus leads to a failure to ensure effective formal market exchanges (Meyer, Estrin, Bhaumik, & Peng, 2009), making it both difficult and costly to operate in the formal economy (de Soto, 1989; Webb et al., 2019; Williams et al., 2017). The substantial increase in transaction costs of operating in the formal economy means that firms become more reliant on governing mechanisms stipulated by informal institutions (Tonoyan, Strohmeyer, Habib, & Perlitz, 2010; Williams et al., 2017). Informal institutions refer to tacit codes of conduct, norms, values, and beliefs prescribed by society as boundaries of what is socially acceptable (North, 1990).

In the presence of weak formal institutions, robust informal institutions can operate as a compensatory mechanism. Hence, formal institutions are less of a default Webb et al. (2019). For example, firms become more reliant on informal lending sources (e.g., local moneylenders) and customary rules governing property rights and access to resources (Meyer et al., 2009) rather than banks and national property laws, respectively. Given that firms align with the dictates of informal institutions to gain access to their supporting mechanisms, informal firms are held as legitimate by the stakeholders of those informal institutions even though they remain illegal (Siqueira et al., 2016; Webb et al., 2009). However, widespread reliance on informal institutions translates to large informal economies that can be observed in many developing countries. Hence, the focus on contexts in which informal institutions substitute formal institutions means that the thesis focuses on contexts where informal firms are particularly prevalent.

1.2 SUMMARY OF THE CHAPTERS

The three chapters of the thesis consist of three research papers written to be self-contained and to pontentially be read separately. Despite this, the three papers are drawntogether by a common objective of investigating how the bounded rationality of decision-makers influences the formalization decisions of informal firms. In this respect, the first chapter is a theoretical paper that lays the foundation for the two empirical papers in the thesis. It proposes a behavioral framework based on the bounded rationality of decision-makers in informal firms. It argues that informal firms' aspirations serve as the judgmental criteria with which decision-makers evaluate the prospect of formalization. The second chapter investigates the joint influence of multiple aspirations on informal firms' decisions to formalize in times of economic disruption. Finally, the third chapter examines the effect of social embeddedness on the relationship between firms' aspirations and their formalization decisions. The three papers are summarized in Table 1.1 and elaborated on in the following.

Chapter 2: When and why informal firms formalize: a strategic decision-making perspective

This paper proposes a behavioral framework of formalization decisions. Prior views on why informal firms are hesitant to formalize have emphasized formalization's financial costs and benefits as driving a rational decision to remain informal (e.g., De Castro et al., 2014; de Soto, 1989). However, the sheer number of interrelated variables that decision-makers have to consider and the limited information available to them means that decision-makers are limited in their ability to estimate the consequences of formalization accurately. Thus, formalization is conceptualized as a risky and uncertain decision affecting a firm's current operations and future survival. The paper argues that decision-makers, driven by their bounded rationality, would focus on using simplified judgmental criteria (Miller & Wilson, 2006; Simon, 1972) to make their formalization decisions; in this case, the aspirations with which business owners started or operated their firms in the informal economy.

Business owners start and operate firms in the informal economy to pursue diverse aspirations, both financial and "non-financial" aspirations. The paper draws on prospect theory to build a set of propositions related to decision-makers' willingness to formalize their firms based on their performance relative to their aspirations. To build the propositions related to non-financial aspirations, the paper proposes a typology of non-financial aspirations for which business owners start and operate firms in the informal economy.

Conceptualizing formalization as an uncertain decision with wide-reaching consequences for a firm's current and future operations augments existing views by emphasizing the complexity of the formalization decision. At the same time, it provides an alternative view of the formalization decision that opens up opportunities for management scholars to contribute to building a robust theory of the informal economy.

Chapter 3: Navigating institutional logics in times of economic disruption: how aspirations interact to influence firm formalization decisions

The second paper builds on the first by extending the boundary conditions of the proposed behavioral framework by focusing on 1) times of economic disruption and 2) the concurrent pursuit of multiple aspirations. This paper investigates, conceptually and empirically, how performance and legitimacy aspirations jointly influence formalization decisions in times of economic disruption. It argues that formalization is a movement from an informal logic of market exchange governed by norms and values to a formal logic of market exchange governed by laws and regulations.

Table 1.1: Overview of chapters in the thesis

Chapter and Coauthors	Question	Methods and Data	Findings
Chapter 2: "When and why informal firms formalize: a strategic decision-making perspective" *(with Marcus M. Larsen*)	Why do firms choose to remain informal in the face of various legal, productivity, and development disadvantages?	Theoretical paper	A behavioral framework emphasizing formalization as a boundedly rational decision driven by firm aspirations
Chapter 3: "Navigating institutional logics in times of economic disruption: how aspirations interact to influence firm formalization decisions" *(with Marcus M. Larsen & Michael J. Mol*)	How do multiple aspirations jointly influence informal firms' decisions to formalize in times of economic disruption?	Experimental vignette methodology (EVM) with 669 owner/managers of informal firms in a cluster of informal firms in Ghana	The formalization decision of informal firms in times of economic disruption is jointly influenced by the multiple aspirations that they concurrently pursue in the informal economy

Chapter 4: "Performance discrepancy, social embeddedness, and informal firms' willingness to formalize"	How does the social embeddedness of informal firms influence their formalization decision?	A survey using a sample of 1,898 firms operating in Latin America and Africa. (World Bank Enterprise Survey)	The formalization decision is influenced by financial performance relative to aspiration level, and this relationship is, in turn, moderated by the social embeddedness of the focal informal firm.

Hence, formalization is conceptualized as a risky institutional change with an uncertain outcome (Sutter et al., 2017).

Economic disruptions - radical and at least partially unforeseen changes to the macroeconomic environment - present decision-makers of informal firms with a paradox in terms of their formalization decision. On the one hand, they can respond to the extremely high uncertainty in the business environment by avoiding risk change and becoming even more dependent on informal institutional support arrangements to ensure their survival. On the other hand, they can register their businesses to take advantage of government rescue packages that become available for formal businesses in times of macroeconomic crises. Indeed, some governments of countries with large informal economies have found that devising rescue policies have led to a sudden surge in formalization. Understanding how decision-makers make their formalization decision is thus important to understand the effectiveness of formalization policies in times of macroeconomic crises.

The paper draws on behavioral theory of the firm and institutional theory to argue that firms' multiple and sometimes contradictory aspirations (Gaba & Greve, 2019) can independently and jointly predict informal firms' willingness to formalize. This mechanism becomes even important in times of economic crisis when firms have to make formalization decisions in the face of extreme uncertainty.

The arguments are supported by three experimental vignette studies conducted in a large cluster of informal firms during the economic disruption that followed the COVID-19 pandemic. The findings have implications for understanding how the extreme uncertainty of macroeconomic disruption influences formalization decisions. Furthermore, the findings have implications for how individual and firm agencies influence the instantiation of multiple logics with firms (Besharov & Smith, 2014).

Chapter 4: Performance discrepancy, social embeddedness, and informal firms' willingness to formalize

Following chapter 3, chapter 4 builds on the behavioral framework proposed in the theoretical paper. It examines the influence of social embeddedness on the financial aspiration -formalization mechanism proposed in the theoretical paper.

The reliance of informal firms on socially constructed norms and values for their survival and competitive advantage means that they are highly embedded in their social environment. Social embeddedness means that informal firms can leverage shared resources and relationships to increase their capacity for action (Uzzi, 1997). However, social embeddedness also imposes cognitive and cultural limitations on what practices, actions, and strategies are deemed acceptable (Dequech, 2003; Tina Dacin et al., 1999). Despite the implications of social embeddedness for decision-making in informal firms, research on formalization decisions has largely ignored the influence of social embeddedness.

Using behavioral theory of the firm and social embeddedness theory, the paper argues that decision-makers of socially embedded informal firms will limit the scope of their search for solutions to underperformance. Moreover, they will also limit their decision-making information to those that align with the prevailing cognitive schema. This boundedly rational approach to decision-making means that decision-makers are less likely to consider or value the performance-enhancing potentials of formalization. Hence, social embeddedness will negatively moderate the influence of financial aspirations on firms' willingness to formalize.

These arguments are supported by data from the World Bank's Informal Enterprise Survey (IES). The IES data consists of a sample of informal or unregistered firms collected by the World Bank from 10 countries in Latin America and Africa. The study has implications for the extant literature on firms' formalization. It also has implications for the design of policy initiatives aimed at formalizing firms in developing economies.

1.3 FINAL REMARKS

The thesis examines informal firms' formalization decisions. Focusing on contexts where robust informal institutions substitute weak formal institutions, the thesis conceptualizes formalization as a risky and uncertain decision. The thesis, therefore, sets out to understand the formalization decision from the perspective of bounded rationality of decision-makers. In so doing, the thesis seeks to understand the heterogeneity in firms' formalization decisions. The three papers constituting the thesis are presented in the following chapters. The final chapter presents a conclusion of the thesis.

Chapter 2

WHEN AND WHY INFORMAL FIRMS FORMALIZE: A STRATEGIC DECISION-MAKING PERSPECTIVE

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Abstract: We offer a behavioral framework to explain informal firms' decisions to formalize. Using prospect theory, we argue that the aspirations for which business owners skirt formal regulation to operate in the informal economy serve as reference points in interpreting and evaluating the prospect of formalization. If firm financial performance is below aspiration, we argue that business owners will be risk-seeking and be motivated to formalize as a means of avoiding the expected loss of operating informally. In contrast, business owners will be risk-averse and motivated to remain informal to avoid the risks associated with formalizing when financial performance is above aspirations. Moreover, we differentiate between the influence of different non-financial aspirations (subsistence, exploitation, legacy, and resistance) pursued by business owners in the informal economy and relate these to the decision to formalize. In conclusion, we contribute to extant research by recognizing how formalization can be seen as a complex decision-making process surrounded by severe information incompleteness and uncertainty.

Keywords: Informal firms; Firm formalization; Strategic decision-making; Firm aspirations; Prospect theory

2.0 INTRODUCTION

It is conventionally assumed that firms that initiate their operations in compliance with laws and regulations can garner legitimacy and reduce the liabilities of newness (Bitektine, 2011; Singh, Tucker, & House, 1986). Indeed, empirical research bolsters that firms operating formally, in general, perform better than firms that skirt legal requirements by operating as unregistered entities or hidden from taxation and regulation (Assenova & Sorenson, 2017; Benjamin & Mbaye, 2012; La Porta & Schleifer, 2014; Ahmadou Aly Mbaye & Benjamin, 2015; Rand & Torm, 2012).

Despite these assertions, informal firms - firms that operate outside the legal framework of a state but in alignment with socially accepted norms and values (Webb et al., 2009) - prevail and are, in contrast to predictions, expanding in numbers and size (Darbi et al., 2018; Godfrey, 2011; Narula, 2020; Williams et al., 2017). Across the world, the informal economy contributes substantial portions of countries' GDP. Estimates point to 31.9% on average across 158 countries while reaching as high as 62.3% for some developing countries (Medina & Schneider, 2018). At the same time, studies establish that informal firms are less efficient contributors to countries' development agenda and create gaps in the provision of decent work across the world (ILO, 2018; Levy, 2008). Why firms choose to remain informal in the face of various legal, productivity, and development disadvantages has therefore been the subject of long-standing debates (Darbi et al., 2018; de Soto, 1989; Webb, Ireland, & Ketchen, 2014).

Prior research has focused on the costs and benefits of formalization that are created by existing formal regulations and infrastructure in the macroenvironment (Sutter et al., 2017). Formalization occurs when a business owner registers his or her firm with the appointed authorities and complies with formal regulations associated with operations, taxes, and labor (Godfrey, 2011; Siqueira et al., 2016; Williams et al., 2017). One stream of thought holds that firms remain informal because the cost and time involved in registration are too high (e.g., de Soto, 1989; Siqueira et al., 2016). Another dominant view holds that firms make a rational choice to remain informal based on the running costs vis-a-vis the benefits of formalization (e.g., Blackman, 2000; Perry et al., 2007). Despite the important contributions of these views, the focus on the economic (dis)incentives created by formal institutions has led to an elusive understanding of how the process of formalization unfolds (Nguyen et al., 2014; Rand & Torm, 2012; Sutter et al., 2017). Specifically, it is unclear why some firms perceive it more or less beneficial to register and operate formally under similar macro-environmental conditions.

In this article, we propose a behavioral framework to explain firms' responses to the prospect of formalization. In doing so, we sidestep an implicit assumption of rational cost-benefit calculus of formalization to instead emphasize business owners' bounded rationality. We argue that the decision to formalize extends beyond the payment of a registration fee and taxes. It encompasses a fundamental change of how a business operates—changing the reliance on trust and word-of-mouth to detailed contractual agreements and changing quality checks by visual inspection and touch to comply with legal standards (Sutter et al., 2017). Like other strategic decisions facing decision-makers of firms, the decision to formalize is interdependent on other contemporaneous and future decisions facing the firm and can affect the firm's stakeholders (Leiblein, Reuer, & Zenger, 2018; Van Den Steen, 2017). The formalization decision is further complicated by the frequently unstable regulatory track records of countries with large informal economies (Narula, 2020). The substantial change to a firm's operations and the vast number of interrelated business and policy variables that have to be considered make it difficult for business owners to accurately specify the cost-benefit trade-off of formalization due to bounded rationality (Gavetti & Levinthal, 2000). Business owners, therefore, suffer from incomplete information, limited capacity to analyze existing information, and substantial uncertainty about how the variables will change over time (Miller & Wilson, 2006; Simon, 1972).

Drawing on prospect theory, we suggest that decision-makers of firms use the aspirations with which they operate in the informal economy as reference points in interpreting and evaluating the prospect of formalization. Based on this logic, we argue that business owners of firms with expected financial performance below the aspiration level will be risk-seeking and prefer the probable loss of formalization to the sure loss of remaining informal. Conversely, business owners of high-performing firms will be risk-averse and prefer the sure gains of remaining informal to the probable but higher gains of formalizing their operations. We then extend our arguments further by considering the effect of other (non-financial) aspirations that informal firms pursue in the informal economy on their decision to formalize. To achieve the latter, we construct a categorization of non-financial aspirations (i.e., subsistence, exploitation, legacy, and resistance aspirations) that business owners of firms pursue in the informal economy and deduce reference points based on these aspirations. We then explain the influence of each reference point on the decision to formalize.

This paper makes important contributions to the literature on firm formalization. First, by adopting a behavioral approach to analyze informal firms' decisions to formalize, we move the discussion from an approach based on an assumption of rational calculations and optimizations to a perspective that recognizes the boundedly rational decision-making process in the face of incomplete information and uncertainty. In doing so, we argue that decision-makers of informal firms may adopt judgmental criteria that may deviate from widely used rational cost-benefit criteria for evaluating the option of formalization. Thus, we highlight aspirations as judgemental criteria that influence decision-makers' formalization decisions. Second, by focusing on the aspirations that firms pursue in the informal economy, we unfold an additional source of heterogeneity in informal firms' response to the prospect of formalization. We propose a set of complementary categories of aspirations that firms pursue in the informal economy and respective reference points based on each category. This categorization of aspirations highlights differences among informal firms and allows for a more fine-grained analysis of firms' response to the prospect of formalization. Finally, by explicitly conceptualizing formalization as a strategic decision facing informal firms, the proposed framework allows us to draw on insights from the literature on firm decision-making to understand how formalization plays out. Thus, we contribute to the theorizing of the informal economy firm (Godfrey, 2011, 2015).

We begin by providing a brief background on the informal economy and informal firms. We then move on with a discussion of formalization as a strategic decision and the presentation of prospect theory. We introduce our model of how diverse aspirations pursued in the informal economy influence business owners' interpretation and response to the prospect of formalization. We conclude with a discussion of the implications of our model.

2.1 THEORETICAL BACKGROUND

The informal economy and informal firms

The informal economy consists of market-based activities conducted by unregistered firms or by registered firms but hidden from taxation and regulation, i.e., informal firms (De Castro et al., 2014; La Porta & Shleifer, 2008; Mcgahan, 2012). These firms exist because of the presence of taken-for-granted norms, values, and social behavior that stand in contrast to the laws and regulations of formal institutions (Webb et al., 2009). For example, large groups of customers are willing to buy goods outside the formal economy as a means of cutting costs or satisfying social and redistributive reasons (London et al., 2014; Williams & Martinez-Perez, 2014). Webb et al. (2009) argue that this incongruence between formal and informal institutions' perception of what is legitimate provides a grey space within which individuals may explore entrepreneurial opportunities. Informal firms, therefore, arise as a means of individuals exploring opportunities in the informal economy by engaging in activities that are illegal yet legitimate to some large groups in society. In this respect, informal firms may utilize illegal means to produce legal goods, legal means to produce illegal goods, or illegal means to produce illegal goods (Portes & Haller, 2005; Thai & Turkina, 2014; Webb et al., 2009). However, even though the market-based activities of these firms are technically illegal, they are typically not considered antisocial by informal institutions (Webb et al., 2013). This definition, therefore, differentiates informal firms from criminal or renegade firms—firms that undertake market-based activities that are both illegal and antisocial (Webb et al., 2009).

In this study, we limit our definition of informal firms to firms that produce legal goods and services. Thus, we focus on "firms that conduct market-based activities with legal goods produced and distributed without regard for taxation or regulation" (De Castro et al., 2014: 76). This allows us to focus on informal firms that have a realistic potential to formalize. Moreover, we focus on informal economy contexts in which informal institutions substitute weak formal institutions. Formal institutions are the formalized laws, rules, systems, and regulations that prescribe what is socially acceptable, whereas informal institutions refer to tacit codes of conduct, norms, values, and beliefs prescribed by society as boundaries of what is socially acceptable (North, 1990). Formal institutions thus provide constraints and incentives that promote lawful behavior while also offering structure via various supporting apparatuses, such as regulatory agencies, capital and labor markets, and infrastructure (Webb et al., 2019). The absence or limited presence of such constraints, incentives, and supporting apparatuses leads to a failure to ensure effective formal market exchanges or even an undermining of such exchanges (Meyer et al., 2009). The presence of such formal institutional voids thus leads to ineffective formal regulatory and economic institutions as well as formal market imperfections that make it both difficult and costly to operate in the formal economy (de Soto, 1989; Webb et al., 2019; Williams et al., 2017).

Additionally, in contexts of weak formal institutions, enforcement of legal requirements may be selective or limited and affected by tacit collusions among actors to circumvent governing frameworks (Meyer et al., 2009; Webb et al., 2009). For example, enforcement may be focused on a few prominent businesses or industries as a way of making a visible example of them while minimizing the significant costs that come with implementation. In other cases, the enforcement is undertaken by agents who may not be sufficiently equipped to implement legal provisions (De Castro et al., 2014). Importantly, the substantial increase in transaction costs of operating in the formal economy means that firms become more reliant on governing mechanisms stipulated by informal institutions (Tonoyan et al., 2010; Williams et al., 2017). Webb et al. (2019) argue that in contexts of formal institutional voids, formal institutions are less of a default. As such, robust informal institutions can operate as a compensatory mechanism as relying on informal institutions might be the only viable alternative in such context. For example, in the presence of formal institutional voids, firms become more reliant on informal lending sources (e.g., local moneylenders) and customary rules governing property rights and access to resources (Meyer et al., 2009). Informal firms may, therefore, strive to acquire legitimacy via informal institutions as a means of gaining access to alternative governance and support structures.

Firm formalization as a strategic decision

Firm formalization occurs when a business owner registers his or her firm with the appointed authorities and complies with formal regulations associated with operations, taxes, and labor (Godfrey, 2011; Siqueira et al., 2016; Williams et al., 2017). Therefore, formal firms use legal means to produce legal goods, conducting their market-based activities with regard to taxation and regulation (De Castro et al., 2014; Webb et al., 2009).

Conventionally, being formal has been viewed as superior to being informal, especially with respect to productivity and firm performance (Benjamin & Mbaye, 2012; La Porta & Shleifer, 2008). Formality is argued to give firms legitimacy to operate more openly, access to a broader range of contracts, risk pooling mechanisms, government-provided business development services, and increased investment that lead to better performance (Assenova & Sorenson, 2017; Fajnzylber et al., 2011; Rand & Torm, 2012). Despite these advantages, informal firms persist and are even said to be expanding in some quarters (Darbi et al., 2018; Godfrey, 2011; Narula, 2020; Williams et al., 2017). A prevailing explanation suggests that business owners in contexts of weak formal institutional voids perceive the costs of formalization as higher than its benefits of formalization, thus making a rational choice to remain informal (Blackman, 2000; de Mel et al., 2013; de Soto, 1989; Perry et al., 2007; Siqueira et al., 2016). As Sutter et al. (2017: 421) point out,"an implicit assumption has been that formalization occurs based on a straightforward rational consideration of the benefits relative to the costs". The expectation, based on this assumption, is that regulatory reforms that reduce the costs of formalization relative to its benefits will break the apparent inertia (De Castro et al., 2014). However, research examining the impact of cost-reducing regulatory reforms on informal firms' formalizing decisions predominantly finds either insignificant or low responses to such interventions (Bruhn, 2013; de Mel et al., 2013; Floridi, Demena, & Wagner, 2020). Other studies find that much of the response comes from new firms rather than preexisting informal firms (Bruhn, 2011) or that interventions, in general, are cost-ineffective (Benhassine et al., 2018). For example, in a field experiment in Sri Lanka, De Mel et al. (2013) find that eliminating information search costs and reimbursing the cost of registration have no effect on informal firms' decision to formalize. De Andrade et al. (2016) also found no significant influence of information and free registration treatments but a small increase in formalization from inspections by Municipal authorities. Benhassine, McKenzie, Pouliquen, & Santini (2018) found similar results for the reduction of information search costs related to formalization but found that 16.3 percent of informal firms formalized when treated with a full package of business support and tax mediation services. Nevertheless, they point out that even with 100% compliance with tax payment, it would take a decade or more of the additional tax revenue to cover the costs of the intervention.

The preceding evidence highlights the persistent "inertia" towards formalization and a need for an alternative view that goes beyond the rational cost-benefit argumentation. Such a view is critical given that formalization affords long-term welfare for the broader society through the provision of higher quality products, employee welfare, and social goods from taxes (de Mel et al., 2013; ILO, 2018; Levy, 2008; Sutter et al., 2017).

In this paper, we propose an alternative view of formalization based on the bounded rationality of the primary decision-maker: the business owner. Firstly, we argue that the costs of moving from informality to formality go beyond a standard payment of a registration fee and taxes. For example, a local Ghanaian food vendor may decide to grow her business by taking advantage of Ghana's growing formal events catering market. To do this effectively, she may consider registering with the Registrar General for a recognizable business name and the Ghana Revenue Authority to enable her to issue the required VAT (value-added tax) invoices to her customers in the formal market. In many cases, she would have to upgrade her business location in terms of aesthetics while meeting Food and Drugs Authoritys' standards for hygiene and quality. To meet the appeal of the formal events market, her employees would now have to wear uniforms that are attractive for the relatively large or exclusive weddings, parties or corporate events that the formal events catering market offers. She would also have to replace her locally sourced aluminum pots with imported silverware usual for her targeted events. The added costs of these changes mean that she may have to revise her menu prices for food sold to individual customers at her business location on a day-to-day basis. Hence she may lose some of her previous customers while gaining others who are attracted to her improved business location. A key group of customers she risks losing may be community-based customers who are loyal to her business because of long-standing personal relationships. They may be turned away by the new menu prices or her new "modern but foreign-looking"[1] business location. She may also have to revise her long-standing supplier relationships to focus on suppliers that can meet her new quantity and quality demands in a timely manner.

The reality of formalization for an informal firm thus involves transitioning from "one institutional framework based on minimal standards (i.e., standards underpinning the informal market) to another institutional framework with specified and enforced standards of quality, efficiency, and volume (i.e., standards underpinning the formal market)"(Sutter et al., 2017: 420). It encompasses fundamentally changing the way a business operates; for example, the primary reliance on trust and word-of-mouth is changed to relying on detailed contractual agreements, while quality checks by visual inspection and touch change to a dependence on compliance with legal standards (Godfrey, 2011; Sutter et al., 2017). Therefore, formalization decision is interdependent on other contemporaneous decisions facing the firm, such as acquiring suitable suppliers and the fit between the firm's current products and the formal market. Like each strategic decision facing decision-makers, formalization can affect the firm's stakeholders and radically shape a firm's evolution (Leiblein et al., 2018; Van Den Steen, 2017). The vast number of variables to be considered and the complex set of interrelationships among these variables limits business owners' ability to accurately specify the potential costs and benefits of their formalization decision owing to bounded rationality (Gavetti & Levinthal, 2000). Thus, formalization is an uncertain decision that could end up being unsuccessful and leading to firm failure. This assertion is especially important for firms that rely on the norms and values of informal institutions for existence and, in many cases, competitive advantage (de Andrade et al., 2016; De Castro et al., 2014; Williams & Martinez-Perez, 2014). Such firms may lose their legitimacy before stakeholders of informal institutions by formalizing (Thapa Karki et al., 2020; De Castro et al., 2014), further complicating their successful return to informality.

Prospect theory and strategic decision-making

To further deepen our understanding of informal firm formalization, we explain when and why informal firms break the apparent "formalization inertia" by focusing on how the aspirations that business owners of informal firms pursue affect their decisions to formalize. In this respect,

[1] In an online interview with Sumaya Abdallah the manager of Sumaya's Kitchen (a vender of local dishes in Tamale, Ghana), Sumaya narrated how she was advised to remove the glass fixtures she had upgraded her business location with because it will damage her reputation of being "local" thus affecting her negatively (Mpuntusem TV, 2021) .

prospect theory is a theory of individual decision making under risk and uncertainty that has been extended to understanding managerial decision-making within the broader management literature (Holmes, Bromiley, Devers, Holcomb, & McGuire, 2011) and, more specifically, the strategic management literature (Bromiley, 2010). The theory has been applied in areas such as firms' merger, acquisition and divestiture decisions (e.g., Shimizu, 2007; Wood, 2009), innovation decisions (e.g., Abrahamson & Rosenkopf, 1993; Mark, William, & Vincent III, 1998; Schubert, Baier, & Rammer, 2018) and the risk-return relationship of firm strategy (Fiegenbaum, 1990; Lehner, 2000).

Prospect theory divides the decision-making process into two phases: a) the editing or framing phase; and b) the evaluation phase (Kahneman & Tversky, 1979). During the editing phase, the decision-maker reorganizes and reformulates the offered prospects, which usually yields a simpler representation of the prospects. In the evaluation phase, the decision-maker chooses the prospect with the highest value among the edited prospects (Kahneman & Tversky, 1979). Prospect theory assumes that decision-makers examine prospects in isolation and hence ignore their current wealth in evaluating prospects (Bromiley, 2010; Kahneman & Tversky, 1979). This assumption is in line with prevailing literature as "both prescriptive and descriptive literature agree that firms consider major choices as independent, isolated gambles"(Bromiley, 2010: 1359).

Prospect theory further assumes that decision-makers frame the outcomes of a decision into gains or losses relative to a neutral reference (Tversky & Kahneman, 1981). The reference point, therefore, plays the critical role of determining how decision-makers interpret the outcomes of a decision. Outcomes above the reference point are framed as gains, while outcomes below the reference point are framed as losses. In this respect, prospect theory has established that decision-makers are risk-averse when it comes to gains as they prefer sure gains to probable gains with a greater expected value. In turn, decision-makers are risk-seeking when it comes to losses, as they prefer probabilistic losses to sure losses of less magnitude. As such, prospect theory assumes that decision-makers are loss averse as losses loom larger than gains, and the displeasure of losses is greater than the pleasure of equivalent magnitude of gains (Holmes et al., 2011; Levy, 1992).

Additionally, decision-makers using one reference point may frame a given outcome as a gain, while decision-makers using a different reference point may frame the same outcome as a loss (Holmes et al., 2011; Tversky & Kahneman, 1981). According to Kahneman and Tversky (1979: 288), "the location of the reference point, and the manner in which choice problems are coded and edited emerge as critical factors in the analysis of decisions". Generally, prospect theory assumes the status quo as the reference point. However, expectations, aspirations, norms, social comparisons, or some other reference point not equivalent to the status quo can be assumed (Kahneman & Tversky, 1979; Levy, 1992; Tversky & Kahneman, 1991).

2.2 PROPOSITION DEVELOPMENT

Financial performance aspiration level and firms' formalization prospects

Aspiration levels are typically set using the performance of similar firms or the historical performance of the focal firm (Greve, 1998). According to Schneider (1992: 1053), "An aspiration level represents the smallest outcome that would be deemed satisfactory by the decision-maker, given the current choice situation". Once set, performance aspiration levels become critical in determining what outcomes that are salient to a decision-maker and thus firm action. Performance aspiration level has therefore been central to research on firm risk-taking behavior (Baum, Rowley, Shipilov, & Chuang, 2005; Bromiley, 1991; Washburn & Bromiley, 2012). Prospect theory predicts that an aspiration level serves as a target or reference point for making judgments about firm performance (Bromiley, 1991). Decision-makers' risk-taking behavior, therefore, depends on the expected level of performance relative to their performance aspiration level at the time of decision making (Greve, 1998, 2003a; Schubert et al., 2018). Decision-makers of firms with expected performance lower than their aspiration level are in a "loss-situation" - considering outcomes of risky or uncertain decisions in a loss framework. On the other hand, decision-makers of firms with expected performance higher than aspiration level are in a "gain-situation" – considering risky or uncertain outcomes in a gain framework. Decision-makers of firms with expected performance lower than their aspiration level (low-performing firms) will be risk-seeking. In comparison, decision-makers of firms with expected performance higher than aspiration level (high-performing firms) will be risk-averse.

Based on this, we argue that informal business owners' financial aspirations (e.g., profit and return on investment) are reference points against which they compare the prospects of formalization. Business owners of informal firms will formalize when they perceive formalization as a more favorable strategy in achieving their financial aspirations. Specifically, while formalization generally provides better opportunities (e.g. expanded market reach and more diversified sources of business financing) for improved financial performance relative to informality, we also assume based on ealier discussoins that formalization is a risky decision, as the firm may not be able to compete successfully under the new institutional framework, leading to firm failure. Thus, we assume that formalization provides the following prospect (a, x; b, y) where a = financial outcome of successful formalization; b = financial outcome of failed formalization; x = probability of successful formalization; and y = probability of failed formalization. Additionally, business owners have the choice to remain informal, in which case their expected financial performance is relatively certain or known. Thus, remaining informal provides the expected financial performance of (c, z) for a high-performing firm and ($-c$, z) for low-performing firms (we use positive notations to indicate an expected value above aspiration level and negative notations for an expected value lower than the aspiration level, where $c < a$ ($-c < -a$) and $z = 1$(sure probability). We, therefore, assume that business owners considering formalizing expect this to be financially beneficial on average.

We graphically summarize the main propositions of prospect theory under a high or low-performance situation in Figure 2.1 The coordinate system represents the arguments above, with the financial performance on the *x*-axis and the value level derived from formalizing on the *y*-axis. The point of intersection of the *y*-axis on the *x*-axis refers to the neutral reference point, that is, the focal firm's performance aspiration level. Even though financial aspiration levels are typically set using the performance of similar firms or the historical performance of the focal firm (Greve, 1998), we expect that the financial aspiration level of an informal firm will typically be set by the business owner based on the historical performance of the focal firm. Unlike listed firms that have publicly available information on firms' financial performance, decision-makers of informal firms typically do not have access to such performance information on related firms. Additionally, many owners of informal firms regularly avoid open signals of performance improvements in their firms to avoid demands of favor from members of the community (Khavul, Bruton, & Wood, 2009; Slade Shantz, Kistruck, & Zietsma, 2018) or to avoid detection by enforcement agents (Ulyssea, 2018). Hence it is plausible that the historical performance of a focal firm would be the only reliable source of the financial performance aspiration level set by the business owners in the informal economy.

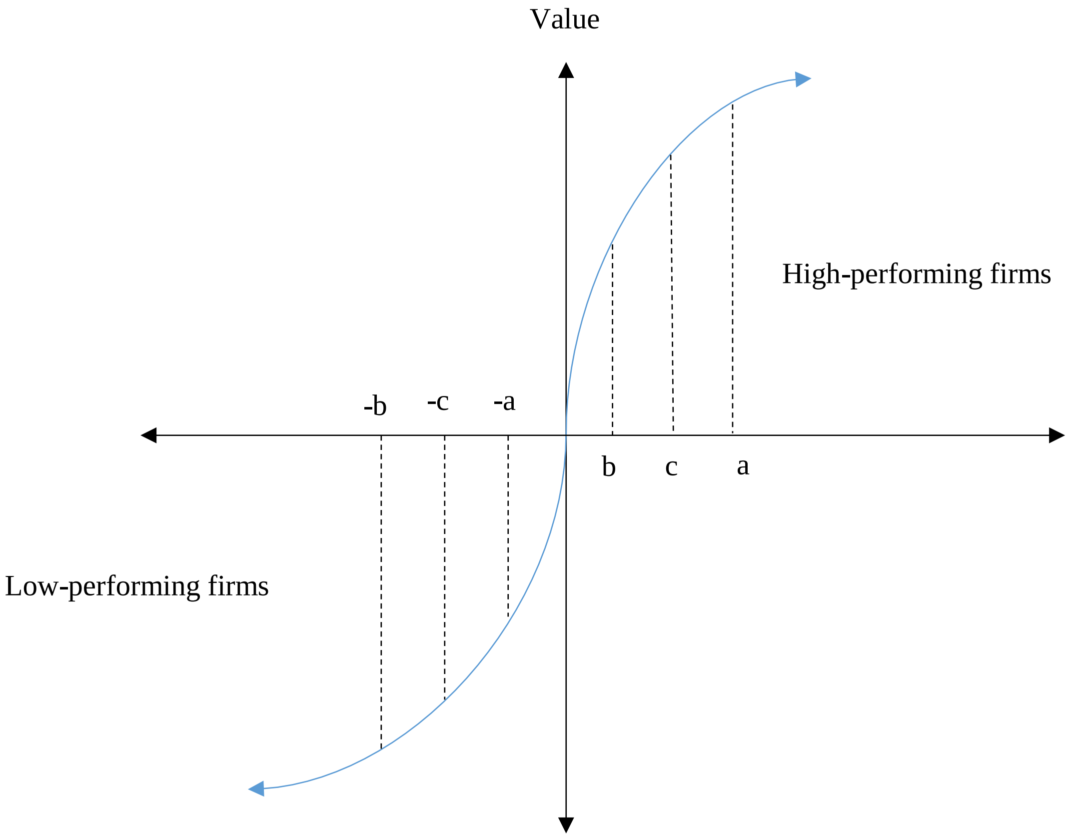

Figure 2.1: Prospect theory and performance aspirations in the informal economy

Business owners of firms with expected financial performance below their aspiration level are in a loss-situation relative to their reference point and are represented by the left side of the diagram. Business owners of firms faced with a loss situation are risk-seeking and thus have a value function that is locally convex. Above the reference point, business owners face a gain situation. They act risk-aversely, and their value function is concave (Schubert et al., 2018), corresponding to the right-hand side of Figure 2.1. Informal firms whose expected financial performance is below their aspiration level (above aspiration level) will have an expected performance of $–c$ (c). Hence, business owners of low-performing firms will edit the prospect of formalization as $(-a, x ; -b , y)$ and $-a < -b$ and $x = y$[2] while business owners of high-performing firms will edit the formalization prospect as$(a, x; b, y)$ where $a, b> 0$ and $a > b$ and $x = y$, reflecting a loss and a gain situations respectively. As demonstrated in Figure 1, business owners

[2] Given the limited ability of the decision-maker to determine the probability of success of the formalization, we assume that the decision maker will assign equal probabilities to the success or failure of formalization. Indeed, if the decision maker assigns reasonably higher probabilities to the chances of failure, loss aversion suggests that a firm faced with certain loss in the informal economy will still be attracted to the low probability of success of formalization. Hence, the predictions of prospect theory remain the same.

of both high and low-performing firms have an expected performance of *c* and –*c* respectively if they choose to remain informal and improved performance of *a* and -*a* respectively if they successfully formalize. At the same time, they have a lower performance of *b (-b)* if the formalization fails.

In line with prospect theory, we argue that business owners of informal firms that have expected financial performance below the aspiration level will be risk-seeking and prefer the probabilistic loss *(-b)* of formalization to the sure loss *(-c)* of remaining informal. They become risk-seeking as a result of low performance and are motivated to engage in a problem-driven search that often challenges the status quo and stimulates exploration of new practices, strategies, and actions to erase or avoid losses (Baum et al., 2005; Lant & Shapira, 2008; Mannor, Wowak, Bartkus, & Gomez-Mejia, 2016). Hence, they will be motivated to explore the efficiency and productivity advantages that could accrue to a formal firm through legitimacy to operate more openly, access to government-supported business services, a broader range of contracts, and access to multiple financing options (Assenova & Sorenson, 2017; Fajnzylber et al., 2011; Rand & Torm, 2012). The business owners will therefore become willing to formalize with the intention of achieving the probable improved performance of -*a* (which is closer to the aspiration level) and thus avoiding the sure loss of -*c*.

The business owners of high-performing firms, on the other hand, will be risk-averse and prefer the sure gains *(c)* of remaining informal to the probabilistic but higher gains *(a)* of formalizing their operations. Business owners who expect performance above aspiration levels are likely to see it as a good reason to avoid risky change (Baum et al., 2005; Greve, 2003a). They will be motivated to avoid the risks associated with the higher performance that comes with formalization by choosing to remain informal. Based on these arguments, we formulate the following propositions:

Proposition 1: *Business owners of low-performing informal firms are risk-seeking and will be motivated to formalize as a means of avoiding the expected loss of operating informally.*

Proposition 2: *Business owners of high-performing informal firms are risk-averse and will be motivated to remain informal to avoid the risks associated with formalizing.*

The preceding mechanism is reflective of the response mechanism of business owners that are driven by financial performance aspirations (e.g., sales and profit) in the informal economy.

Hence, their formalization decision is made by the prospects of remaining informal versus formalizing to the reference financial aspiration level. In the following sections, we expand our theorizing to include other (non-financial) aspirations frequently reported by various studies as reasons for why business owners start or operate their businesses in the informal economy. We first build a typology of aspirations to categorize the various aspirations pursued in the informal economy. We explain the reference points adopted by decision-makers in each category of aspirations and how each reference point influences subsequent formalization decisions based on prospect theory.

Typology of non-financial informal firm aspirations

According to Miles, Snow, Meyer, & Coleman (1978: 547), "An organization is both an articulated purpose and an established mechanism for achieving it". Research on informal firms has highlighted that firms in the informal economy differ from their formal counterparts in relation to the purpose for which they exist and mechanisms by which they operate to achieve their purpose. Studies have argued that informal firms are founded as a result of constraining factors such as the need to survive, provide for the family, or to escape burdensome taxes or cumbersome bureaucracy (de Soto, 1989; Hart, 1973; Kistruck et al., 2015). Other firms are also formed out of distrust for elitist system formal institutions (Williams et al., 2017, 2016) or by deliberate effort to avoid regulation and taxation that is not a result of distrust or cumbersome bureaucracy (Ulyssea, 2018).

In terms of the mechanisms by which informal firms achieve their purpose, business owners of informal firms rely on legitimacy defined by informal institutions for their existence and survival (Webb et al., 2009). This reliance on informal institutional legitimacy contrasts with formal firms' dependence on legitimacy defined by formal institutions (Bitektine, 2011; Singh et al., 1986). Informal firms are also typically characterized by high embeddedness in the social context, small firm sizes relative to formal firms, and the sourcing and supplying of goods through individual transactions or a sub-sector network of commercial relationships (Chen, 2012; Hart, 1973; Ulyssea, 2018). Again, owners of informal firms frequently adopt resource strategies, such as carrying smaller inventories, drawing upon informal loans, and using free raw materials (Webb et al., 2013). However, informal firms are not all the same, this is because they feature different purpose-mechanism combinations that can differentiate one informal firm from another. Thus, we argue that informal firms can be differentiated based on a combination of the business owners' purpose for running an informal firm and the mechanisms adopted in the firm for achieving such a purpose.

Extant research has classified the purpose why business owners start or operate firms in the informal economy into exclusion-driven purposes and exit-driven purposes (Williams & Lansky, 2013). On the one side, exclusion-driven purposes are linked to the existence of minimal social protection from the state and increased outsourcing and subcontracting aimed at reducing production costs (Williams et al., 2016). Such constraining factors drive entrepreneurs to start informal firms as a survival strategy, that is, serving the need for personal survival or provision for the family (de Soto, 1989; Hart, 1973; Kistruck et al., 2015). On the other side, exit-driven purposes represent the voluntary decisions to operate in the informal economy as a result of high tax rates, public sector corruption, or resistance toward government. Business owners of such firms, therefore, operate informally out of distrust for a formal institutional system perceived as elitist and lacking procedural and redistributive justice and fairness (Williams et al., 2017, 2016). Others operate in the informal economy out of an effort to escape taxes or regulations that are seen as burdensome or subject to cumbersome bureaucracy (de Soto, 1989; Godfrey, 2011).

More recent discussions, however, highlight the fact that informal firms are not always established as a result of constraining circumstances. Research indicates that informal firms may be started as a response to perceived entrepreneurial opportunities (Siqueira et al., 2016; Williams et al., 2017) or out of a deliberate effort to avoid regulation and taxation to make increased profits (Ulyssea, 2018). Other firms may also be started and operated by affluent founders with business acumen who see an opportunity to increase their wealth or achieve lifestyle or social objectives (Hall & Rusher, 2013; Webb et al., 2009). Finally, some business owners may be operating their firms informally out of tradition (Chen, 2012; Darbi et al., 2018; Slade Shantz et al., 2018). In general, it can be argued based on the preceding discussions that the purposes with which business owners operate their businesses in the informal economy are derived from an interaction between the person and the socioeconomic environment in which the business owner is embedded.

We suggest that the mechanism by which business owners of informal firms achieve their aspirations hinges on two linked factors, a) a firm's level of dependence on legitimacy before informal institutions b) a firm's access and management of resources for production. Institutions confer legitimacy (North, 1990), both in legal and non-legal forms (Webb et al., 2013, 2009), by defining boundaries of social acceptability. A firm, therefore, acquires social legitimacy through the adoption of structures, practices, and symbols prescribed by relevant institutions (Aldrich & Fiol, 1994; Suddaby, Bitektine, & Haack, 2017). In contrast to the dominant stream of legitimacy-related research, however, informal firms possess legitimacy regarding informal institutions and yet are technically illegal and hence lack legitimacy with respect to formal institutions (Webb et al., 2013). Informal firms, therefore, exist because informal institutions hold them as legitimate (Webb et al., 2009). Hence, firms run by business owners in the informal economy rely on this legitimacy from informal institutions to access resources and markets (de Andrade et al., 2016; De Castro et al., 2014; Williams & Martinez-Perez. This reliance on informal institutional approval for legitimacy means that owners of informal firms aspire to maintain or improve their legitimacy by engaging in the relevant norms and practices.

We posit that informal firms differ in the level to which they are dependent on legitimacy before informal institutions for survival. A business owner who depends on membership of a tightly knit network of business people belonging to the same ethnic group for business success would be more inclined to align with informal institutional requirements of the group compared to a business owner who manages to build business successful by only partially relying on the ethnic group network. The different levels of dependency on informal institutions mean that business owners in the informal economy are influenced differentially by the desire for informal legitimacy. Thus the desire for legitimacy before informal institutions differs in its influence on key decisions facing informal firm owners.

In relation to resources, firms operating in the informal economy encounter severe resource constraints owing to the lack of support by formal institutions (Webb et al., 2013) such as banks, venture capitalists, and institutional investors. However, firms can act strategically to overcome constraints by leveraging a collective identity (e.g., race or ethnicity) for financial bootstrapping and resource sharing (Webb et al., 2009). Again, informal firms' also adopt resource allocation strategies, such as carrying smaller inventories, drawing upon informal loans, and using free raw materials (Webb et al., 2013). The different resource management strategies available to informal firms and the differential endowment in capabilities and resources that informal economy entrepreneurs may have at the start of the firm (Dencker, Gruber, & Shah, 2009; Grimm et al., 2012) mean that informal firms also vary in their resource endowment. For example, an entrepreneur in the informal economy who starts their business to supplement income from formal work may be more endowed with financial resources than an entrepreneur who starts the business after a long spell of unemployment.

In the following, we classify the aspirations that business owners of informal firms pursue into four categories: a) subsistence aspirations, b) exploitation aspirations, c) legacy aspirations, and d) defiance aspirations. To achieve this typology of aspirations, we discuss the primary purpose that business owners pursue in the informal economy and the mechanisms (dependence on informal legitimacy and resource endowment) by which business owners achieve the primary purpose through their firms. We present these categories as ideal types in which each informal firm will predominantly fall. Table 2.1 presents a summary of the typology.

Subsistence aspirations: First, informal firms that operate primarily as a survival strategy are driven by subsistence aspirations. Such informal firms are started because business owners lack other sources of income or employment (Garcia-Lorenzo, Donnelly, Sell-Trujillo, & Imas, 2018; Thieme, 2018). Therefore, they are not necessarily established from the inherent desire to pursue market-based activity but on the requirements to satisfy basic needs. The primary focus of such firms is not growth or market expansion but to provide a "reasonably durable basis for livelihood" for its owners (Hart, 2000). In his seminal article that coined the term informal economy, Hart (1973) presented the case of Atinga, a 28-year-old man who started a gin bar in his living quarters to finance his period of unemployment. In a more recent article, Godfrey (2011: 231–232) presented the case of Francis, a street vendor with little formal education and no capital, who sells shirts on a busy street in downtown Accra, Ghana. As can be derived from these cases, firms with subsistence aspirations are usually micro-enterprises with low resource endowments (Rand & Torm, 2012; Williams et al., 2016) serving small geographical areas, usually neighborhoods. Such firms are thus highly dependent on legitimacy within localized informal institutions to get access to benefits such as informal lending and insurance mechanisms as well as inter-household transfers of resources that are often embedded within specific localities (Webb et al., 2019).

Exploitation aspirations: Next, informal firms operating with the purpose of increasing the owners' financial wealth through the exploitation of entrepreneurial opportunities in the informal economy are classified as pursuing exploitation aspirations. These firms are linked to the more recent recognition that informality can be a choice driven by recognition of entrepreneurial opportunity rather than necessity (Siqueira et al., 2016; Williams et al., 2017) or that firms may choose to operate informally to earn higher profits from the cost advantages of not complying with taxes and regulations (Ulyssea, 2018). In most cases, these firms are medium-sized manufacturing, trade-oriented, and/or online businesses (Grimm et al., 2012; Siqueira et al., 2016). A famous example of this is the case of the launch of the music streaming site, Napster (Webb et al., 2009). These firms are typically sufficiently productive to survive in the formal sector but choose to operate in the informal sector owing to perceived cost advantages of avoiding taxes and regulations (Ulyssea, 2018).

Table 2.1: Characteristics of firms with non-financial aspirations of firm aspirations and respective reference points.

Non-financial aspiration	Primary purpose	Dependence on informal institutional legitimacy	Resource endowment	Reference point
Subsistence aspirations	Generating a reasonably durable and predictable basis for livelihood	Highly localized geographical market Strong dependence on informal institutional legitimacy	Usually Micro firms Low human capital and resource capabilities	Survival
Exploitation aspirations	Increasing wealth of owners by exploiting opportunities in the informal sector	Geographically diverse markets Low dependence on informal institutional legitimacy	Usually small to medium sized firms High human capital and resource capabilities	Continuous firm growth
Legacy aspirations	Leveraging valuable informal legitimacy	Geographical market determined by reach of Informal legitimacy Strong dependence on informal institutional legitimacy	Usually small to medium sized firms Diverse human capital and resource capabilities	Maintaining informal legitimacy
Resistance aspirations	Resisting perceived lack of procedural and redistributive justice and fairness	Geographically diverse markets Low dependence on informal institutional legitimacy	Usually small to medium sized firms Diverse human capital and resource capabilities	Defiance

Firms established based on owners' exploitation aspirations are therefore relatively resource-endowed and growth-oriented compared to firms characterized by subsistence aspirations (Webb et al., 2019; Williams et al., 2017). The relative endowments and growth orientation of these firms make them relatively larger (Fajnzylber et al., 2011). A unique group of informal firms with exploitation aspirations include firms started by business owners in the informal economy with an existing intention to formalize. Such firms are started by entrepreneurs who require a proof-of-concept for new their products or services (Gelb et al., 2009; Nelson & De Bruijn, 2005) and therefore seek to ascertain the viability of the product or service by starting informally. On the other hand, such firms may also be created by entrepreneurs who choose to focus their limited resources on overcoming alternative liabilities of newness that exist in weak formal institutional environments (Williams et al., 2017), thus laying a stronger foundation for subsequent growth after formalization.

Being primarily premised on entrepreneurial opportunities in the informal economy, firms started or operated with exploitation aspirations regularly engage in scalable ventures (Webb et al., 2009) that have potential markets beyond specific localities. The resource endowment of these firms and scalable ventures they pursue means that informal firms with exploitation aspirations have less dependence on informal institutions for access to resources or other benefits. They, therefore, have less dependence on legitimacy within the informal institutions for survival or competitive advantage.

Legacy aspirations: Third, we consider business owners to have legacy aspirations if they operate informal firms as a result of family, ethnic, industry, or social tradition (Chen, 2012; Darbi et al., 2018; Hunt, 2009; Slade Shantz et al., 2018). For example, Uzo and Mair (2014: 59) report that the Nigerian movie industry (which is recognized as the second largest in the world in terms of volumes of movies produced per year) consists largely of informal firms that “consciously or unwittingly choose not to comply” with copyright laws. Indeed in the presence of formal institutional voids, the pervasive and long-term effects of significant institutional incongruence can lead to informality becoming the norm (Webb et al., 2013). Other research indicates that many informal operations are a result of hereditary occupations or business activity passed down from one generation to the next (Chen, 2012; Darbi et al., 2018; Slade Shantz et al., 2018). We thus propose that some business owners operate informally as a taken-for-granted way of doing business passed on through family, community, or industry traditions rather than the desire to survive or create wealth. We assert that legacy aspirations will be most salient when they have implications for legitimacy or competitive advantage for the firm. In such cases, the firms are dependent on the localized governing mechanisms that informal institutions provide for access to resources and survival. As such, a major characteristic of informal firms with legacy aspirations is their embeddedness in a locality or an organized group that is governed by informal norms such as exist in ethnic enclaves (Webb et al., 2009). For example, businesses that are highly embedded in ethnic networks and rely on this close relationship with network members for access to critical resources or competitive advantage.

Resistance aspirations: Finally, business owners may voluntarily decide to operate in the informal economy as a result of resistance toward formal institutions due to a perceived lack of procedural and redistributive justice and fairness (Murphy, Tyler, & Curtis, 2009; Williams et al., 2016). This resistance stems from the perception that existing formal institutions seek to protect or maximize economic rents for elites or are not effective in distributing social benefits (Maloney, 2004; Webb et al., 2014). Lee & Hung (2014), for example, present the case of the Shan-Zhai phones industry in China, where 3,000-4,000 micro to small firms rebelled against the government industrial policy to produce and distribute phones between the years 1998 and 2008. Such firms, therefore, operate in the informal sector purposefully as a form of protest or activism and may therefore not depend on informal institutions' legitimacy for resources but may pursue such legitimacy as a way of ensuring collective identity with like-minded firms.

According to prospect theory, informal business owners with different aspirations will adopt different reference points in making strategic decisions and thus the formalization decision. Correspondingly, we posit that a) subsistence-oriented business owners will adopt 'survival' as their reference point; b) business owners with exploitation aspirations will adopt 'continuous firm growth'; c) owners with legacy aspirations will adopt 'maintenance of informal legitimacy'; while d) owners with resistance aspiration will adopt 'defiance of formal institutions' as reference points. Based on preceding arguments, we suggest that the differences in reference points adopted by business owners of each category of informal firms and the inherent characteristics of each firm in each aspiration category will lead to differences in how the business owners frame the prospect of formalization. In building this explanation, we assume that the reference point adopted by the owner of an informal firm is a target that the focal firm is working to either achieve or to maintain. Secondly, we assume that business owners that are satisfied with the achievement of their aspirations will adopt the next relevant aspiration in a process similar to aspiration adjustment (Cyert & March, 1963). For example, firms that have achieved survival aspirations will seek to either maintain this level of success or adjust their aspiration to wealth accumulation (exploitation aspiration). We do not intimate that the forms of aspirations that individuals pursue in the informal economy are mutually exclusive but discuss their influence separately for the purpose of analytical clarity. Additionally, we expect that in the cases where more than one aspiration drives a firm’s operations, one of these aspirations will be most salient in interpreting and evaluating the prospect of formalization.

Non-financial aspirations and the decision to formalize

Firms operating with subsistence aspirations are established as a survival strategy and thus focus on generating a reasonably durable and predictable basis for livelihood (George, Kotha, Parikh, Alnuaimi, & Bahaj, 2016). Business owners' focus on producing enough to make a livelihood means that such firms have production levels close to the point of firm survival, thus making firm survival salient (March & Shapira, 1987). Firms may be operating close to firm survival levels due to resource constraints or the inability to leverage productive resources effectively. This is because such firms are not necessarily started out of the desire or ability to manage market-based transactions but are usually formed as an option of last resort.

Additionally, many business owners of firms with subsistence aspirations have little or no distinction between the capital used to run the business and money used to support their livelihood and that of their families (Chen, 2005; Hussmanns, 2004). This can result in a limited capacity in planning for and effectively leveraging the little capital available to such firms. In effect, such firms operate on the borderline between survival and firm failure. Research suggests that decision-makers of firms threatened by the firm failure may focus on ensuring firm survival and therefore become risk-averse (March & Shapira, 1992; Staw, Sandelands, & Dutton, 1981). Such firms will avoid risky actions with uncertain outcomes that could yield performance below the threshold for firm failure (Desai, 2008; March & Shapira, 1987). Thus, in suggesting that informal firms with subsistence aspirations will adopt survival as their reference point, we posit that firm failure will become salient to business owners in such informal firms.

Further, business owners of firms with subsistence aspirations will edit the prospect of formalization ($a, x; b, y$), to include a high probability of failure and a low probability of success, thus $x < y$. This implies that firms with subsistence aspirations will perceive it more unlikely to successfully implement formalization, therefore leading to a high probability of losing their ability to produce a reasonably durable source of livelihood. Remaining informal, however, assures them of the reasonably durable sources of livelihood that they are already making (c, z) and z =1. Hence relative to the survival aspirations, firms are in a “gain zone” as both remaining informal and formalizing benefit survival. However, remaining informal provides a sure (known) gain while formalizing provides higher gain but with a low probability of success. Given that decision-makers prefer sure gains to higher gains with lower probabilities, we expect that decision-makers of firms operating with subsistence aspirations will thus be risk-averse towards the prospect of formalization.

This argument is further supported by the fact that informal firms with subsistence aspirations are mostly micro-firms serving small geographical areas, usually neighborhoods. The localized nature of their client-base and these firms' small and steady nature makes the formal economy's risk pooling mechanisms or credit institutions relatively unimportant (Fajnzylber et al., 2011; Levenson & Maloney, 1998). They are also engaged in market-based activities that require less skill and can be easily imitated (Webb et al., 2019). Their competitive advantage, therefore, relies heavily on their embeddedness in a specific locality. The relative unimportance of formal institutions to these firms and the relative dependence of their competitive advantage on the informal institutions of their locality means that formalization presents less obvious benefits to such firms. Being unable to maximize the benefits of formalization means the decision-makers have misallocated the firm's scarce resources, therefore, increasing the probability of firm failure.

Thus, we argue that the focus on survival and the relative unimportance of informal institutions to informal firms with subsistence aspirations will increase the business owners' perception of the probability of failure associated with formalization as a strategy for ensuring their survival. This will, in turn, make them risk-averse towards the prospect of formalization. Business owners with subsistence aspirations will, therefore, be more likely to prefer the relatively certain income from informality to the uncertain but higher income from formalization. We, therefore, posit that:

> Proposition 3: *Business owners of informal firms with subsistence aspirations will be risk-averse towards the prospect of formalization and will, therefore, be more likely to remain informal.*

Second, firms with exploitation aspirations operate in the informal economy with the focus of increasing the wealth of owners. Thus, business owners of these firms usually operate in the informal sector to increase firm performance by avoiding the costs associated with formalization (Ulyssea, 2018) or increasing the resource advantages of aligning with informal institutions (Williams et al., 2017). We suggest that business owners with exploitation aspirations will adopt continuous firm growth as their reference point. However, their desire for firm growth is not triggered by the firm's growth below the desired level but by the desire to increase the wealth of firm owners continuously.

Firms that pursue exploitation aspirations in the informal economy usually have higher human capital and resource capabilities that make them capable of surviving in the formal economy (Ulyssea, 2018). We, therefore, expect that decision-makers driven by exploitation aspirations to edit the prospect of formalization to include a higher probability of success compared to failure, that is ($a, x; b, y$), where $x>y$. Furthermore, we expect owners driven by a constant desire for continuous firm growth will, in time, become attuned to informal legitimacy's relatively limited geographical reach. Formal institutions within one locality are commonly consistent with expectations within other localities of the same country (Webb et al., 2019). Thus, formal institutions provide a broader market reach for the usually scalable ventures pursued by these growth-oriented firms. Thus, we expect that informal firms with exploitation aspirations will overtime value the broader market reach, access to a broader range of contracts, risk pooling mechanisms, government-provided business development services, and increased investments (Fajnzylber et al., 2011; La Porta & Schleifer, 2014; Rand & Torm, 2012) provided by formal legitimacy over cost savings and the limited resource access provided by informal legitimacy. It is at this point that decision-makers will be faced with the decision of formalizing versus remaining informal. Further, at this point, the limited market or geographical reach of informal institutions means that remaining informal provides a sure loss of potential firm growth with no probability of firm failure (as they avoid the risky change associated with formalization). On the other hand, formalization at this point represents a high probability of firm growth but also a low probability of loss (owing to high human and resource capabilities) due to possible firm failure from formalization. Decision-makers of firms with exploitation aspirations comparing these potential losses will therefore be in a "loss situation" faced with a choice between a sure loss of firm growth from remaining informal or a probable loss of formalizing. Given that decision-makers are risk-seeking in the realm of losses, we expect that decision-makers will become risk-seeking towards the prospect of formalization. Consequently:

Proposition 4: *Business owners of informal firms with exploitation aspirations will be risk-seeking towards the prospect of formalization and will, therefore, be more likely to formalize*[3].

[3] For the unique set of informal firms with exploitation aspirations that were started-up with intention to formalize, we expect that such business owners will set a threshold level of performance above which they will consider their business to have overcome liabilities of newness or achieved a proof of concept. Business owners of such firms will

Third, firms started or operated by business owners with legacy aspirations operate informally as a socially accepted and possibly taken-for-granted way of doing business passed on through family, community, or industry traditions (Darbi et al., 2018; Slade Shantz et al., 2018; Uzo & Mair, 2014). Informal firms for which this aspiration is salient are relatively highly embedded in the social context within which the taken-for-granted norms prevail. Hence, they are able to draw on resources and relationships within the social environment that increase their capacity for action beyond the boundaries of their own resources and capabilities (Khavul et al., 2009; Uzzi, 1997). Firms embedded in ethnic networks can, for example, draw on shared resources (Webb et al., 2009) or privileged trade information that is not available to businesses outside the network. However, this embeddedness in the social environment imposes cognitive and cultural limitations on what practices, actions, and strategies are deemed acceptable (Dequech, 2003; Tina Dacin, Ventresca, & Beal, 1999). De Castro et al. (2014: 86), for example, observe that in such cases of embeddedness, "there was a profound sense that if the entrepreneurs pursued registration, they would be outliers bucking the informal rules of the meso environment that others followed".

Hence, formalizing for decision-makers of firms with legacy aspirations will mean losing legitimacy before stakeholders of informal institutions but gaining legitimacy before stakeholders of formal institutions. However, relative to the reference point of "maintenance of informal legitimacy", formalization provides a sure loss. Further, the argument can be made that informal firms cannot always please the multiple stakeholders of the informal economy (e.g. customers, suppliers, etc.). This is because firms have limited resources, but stakeholders diverge on what issues are important (Mitchell, Agle, & Wood, 1997) and thus on what actions are important in signifying alignment with the dictates of informal institutions. Thus even though remaining informal gives a firm with legacy aspirations a high probability of maintaining its informal legitimacy, the probability may not be assured. Nevertheless, relative to maintaining informal legitimacy, formalization provides a sure loss while remaining informal provides a loss of low probability, if any. Given that decision-makers are loss averse, they are likely to avoid the sure loss of formalizing by choosing to remain informal.

Further, firms with legacy aspirations may derive a competitive advantage by fitting a significant portion of their operations around the prescriptions of the institutional environment.

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thus be willing to formalize once the threshold is reached or exceeded. Thus following the general trend of willingness to formalize among firms with exploitation aspirations.

Such fit increases the number of variables and the interrelationships that owners of such firms need to consider in making the formalization decision. Moreover, the differences in institutional frameworks governing economic exchange in the formal and informal economy mean that decision-makers of highly embedded firms will struggle to incorporate these differences into their existing mental models due to cognitive limitations (Cerrato et al., 2016; Cyert & March, 1963). Bounded rationality thus means that owners of such firms will edit the probability of firm failure as a result of formalization as high compared to firms with less fit. This significantly increases the perceived failure risk associated with formalization, thus reducing the probability of decision-makers willingness to switch their focus from "maintaining informal legitimacy" to "gaining formal legitimacy".

In sum, given the loss aversion of decision-makers, we expect owners of firms with legacy aspirations to find the probable broader legitimacy and market reach of formalization as less attractive compared to the secured but localized legitimacy and market reach that they currently possess by being informal. Thus we expect that this loss aversion will drive decision-makers of firms with legacy aspirations to become risk-averse towards the prospect of formalization. Hence;

> Proposition 5: *Business owners of informal firms with legacy aspirations will be risk-averse towards the prospect of formalization and will, therefore, be more likely to choose to remain informal.*

Finally, informal firms with resistance aspirations operate in the informal economy as a way to show defiance to formal institutions. Such firms perceive formal institutions as overly bureaucratic or operating in favor of elite groups in society (de Soto, 1989; Fajnzylber et al., 2011; Williams et al., 2017). These firms will, therefore, perceive successful defiance of formal institutions as a tool for making their case or changing the status quo (Murphy et al., 2009). We, therefore, argue that successful defiance will be the reference point for firms with resistance aspirations. Relative to the reference point of defiance, remaining informal presents a sure gain of demonstrating defiance by refusal to register and pay taxes. This defiance, however, means that the firm may not be considered legitimate by formal institutions. Therefore, formal institutional stakeholders may be reluctant to engage in dialogue about issues that bother firms with resistance. The alternative is to show resistance while being formal (e.g., through protests and petitions). Even though such actions may be recognized as legitimate by formal institutions, they are less probable in achieving the level of a show of resistance that firms with resistance aspirations may desire. Further, given the observed frequency of such "formal acts of resistance," the probability that such actions will be ignored by formal institutions concerned may be relatively higher compared to the complete defiance offered by remaining informal.

Hence, the gains from protesting as a formal firm are less probable compared to defiance gains by operating informally, particularly in contexts already characterized by weak institutional voids. Decision-makers of firms with resistance aspirations will therefore have to compare the relatively sure gains of defying authorities by remaining informal to the probable gains of formalizing. Decision-makers will thus be risk-averse, preferring the relatively sure gains of remaining informal to probable gains of formalizing. Hence;

> Proposition 6: *Business owners of informal firms with resistance aspiration will be risk-averse towards the prospect of formalization and will, therefore, be more likely to remain informal.*

2.3 DISCUSSION AND CONCLUSION

In theorizing why informal firms choose to formalize or not, prior research has primarily focused on the quasi-rational cost-benefit calculus of the (dis)incentives of formalization (Sutter et al., 2017). However, this focus has failed to explain why some firms with relatively similar characteristics choose to formalize and perform better under similar regimes of (dis)incentives (Assenova & Sorenson, 2017; Rand & Torm, 2012). This unexplained variance discounts the ability of present views to explain the formalization decision of informal firms. Evidence of the weakness in current views is present in informal firms' inertia towards formalization initiatives. These initiatives usually targeted at reducing the costs of formalization or increasing its benefits, have yielded insignificant levels of formalization (Bruhn, 2013; de Mel et al., 2013; Floridi et al., 2020). In this paper, we propose a behavioral approach to firm decision-making to extend the current literature's reach in explaining how the formalization of informal firms plays out. The mechanisms discussed in this paper move the literature on the formalization of informal firms from a focus on cost-benefit calculus to one that integrates issues of perceived injustices, a culture of informality, and the tenets of bounded rational decision-making. In so doing, the study makes contributions that have implications for our understanding of how the formalization of informal firms unfolds.

First, earlier contributions to decision-making under risk and uncertainty have given considerable attention to the role of firm aspirations in shaping firm behavior (Audia & Greve, 2006; Bromiley, 1991; Gaba & Greve, 2019; Greve, 1998). The framework presented in this paper suggests that the same mechanism may be relevant to our understanding of the formalization decision of informal firms. Second, the typology of informal firm aspirations proposed by this framework implies that different categories of firms adopt different criteria in evaluating the value of formalization. The implication of this is that if firms adopt evaluation criteria different from what is assumed by researchers, then researchers may conclude on mechanisms that deviate from the actual mechanisms that underlie such informal firms' response to formalization.

Additionally, insights from the influence of performance aspiration levels and the various forms of aspirations point to the fact that informal firms are more likely to formalize if they are driven by growth-oriented aspirations. The implication is that, for the majority of informal firms that operate with subsistence, legacy, and resistance aspirations, formalization may not be a useful strategy for achieving their objectives. In essence, formalization of informal firms, like corporate social responsibility, may be a "public good" (Bagnoli & Watts, 2003; Hartmann, 2011; McWilliams, Siegel, & Wright, 2006) that informal firms may only be willing to pursue if relevant stakeholders demand it in return for relevant firm-level benefits. Finally, the performance-growth-aspiration hypothesis for formalization alluded to in the preceding discussion provides an alternative explanation for the findings, that firms that "look formal" to begin with were more likely to formalize (e.g., Benhassine et al., 2018; Nguyen et al., 2014). The dominant explanation of such findings is that firms that look formal, to begin with, are larger and more prone to detection. Our framework, however, suggests that the size of these firms may be an endogenous representation of the human capital and resource endowment of firms with exploitation aspirations. As such, the formalization of such firms may be more related to business owners' desire to exploit the broader market reach, access to risk pooling mechanisms and other advantages that come with formalization rather than the fear of being detected. This assertion is supported by the findings of Williams et al. (2017) that suggest that some growth-oriented focus their limited resources on overcoming alternative liabilities of newness existing in weak institutional contexts, thus laying a stronger foundation for subsequent growth after formalization.

Some issues remain. Firstly, we recognize that informal institutions are slow to change but not static (Williamson, 2000). As such, informal institutional support for the existence of informal firms may change over time, thus affecting the mechanisms proposed by this framework. The implication of this, however, is that policy effort that is aimed at improving the rate at which informal norms and values align with formal institutional expectations may be effective long-term strategies towards the formalization of informal firms. Such interventions may be most relevant to developing country contexts, where weak institutional environments may increase the gap between what formal and informal institutions consider as legitimate. These assertions, however, open avenues into future research based on the proposed framework. Future studies can investigate how changes in formal institutional arrangements or changes in the level of incongruence between formal and informal institutions moderate the relationship between the aspirations firms pursue in the informal economy and informal firms' decisions to formalize. Such a question could be addressed by national-level panel datasets that observe changes in formal and informal institutions. Additionally, given the relatively enduring nature of informal institutions, experimental research could be employed to investigate factors that catalyze changes in informal institutions that support the existence of informal firms.

Secondly, the framework proposes two major mechanisms by which aspirations affect informal firms' response to formalization; a) the influence of financial performance relative to aspiration level, b) the influence of other ("non-financial") aspirations (i.e. subsistence, exploitation, legacy, and resistance aspirations). This should not be taken to mean that an informal firm may not have both financial performance and non-financial aspirations but that whether financial or non-financial aspiration is salient at the time of decision-making determines the mechanism by which the focal informal firm responds to the prospect of formalization. Future research can, however, relax this assumption to examine how firms balance multiple and potentially compete for firm goals in making formalization decisions. For example, under what conditions would a firm with both resistance and performance level aspiration choose to formalize in order to achieve performance level aspirations above the desire to defy authorities. This can be taken a step further to understand how firms respond to multiple and contradictory institutional demands. For example, under conditions where weak formal institutions are replaced by informal institutions, under what conditions do firms leverage both formal and informal legitimacy to satisfy different organizational goals that may be supported to different levels by formal and informal institutional arrangements. Such a study may be made possible by merging the fields of institutional pluralism with aspiration theories.

Also, we recognize the increasing call to conceptualize formalization on a continuum rather than a dichotomy (Bruton, Duane Ireland, & Ketchen, 2012; Godfrey, 2011). Hence, informal firms may, for example, register their business name but may avoid the payment of taxes at the national or municipal level in countries where registration procedures for business name and taxes are decoupled. Here, we expect that the mechanisms we propose will hold for movement from one level of formalization to another. Continuing from our catering industry example, we expect that the owner of an underperforming catering business who already has a registered business name but sees a greater market opportunity in registering for taxes will be risk-seeking and willing to register for taxes. Such a situation may exist if a sufficiently large portion of the formal market demands a tax invoice for transactions. On the other hand, an owner of a catering business that is driven by subsistence aspirations, even though registered at the business name level, will be relatively risk-averse towards registering for taxes. This risk-aversion is because s/he may not be able to compete successfully with other formal firms operating at that level of formalization owing to human and other resource limitations. Further, s/he may be more inclined to perceive higher chances of failure owing to the closeness of the business performance to the survival level and thus will be inclined to avoid risking the failure of the business.

In conclusion, the prevalence and growth of the informal economy against predictions of demise by leading scholars has led to an increased interest in understanding why firms choose to remain informal in the face of various legal, productivity, and development disadvantages. Conceptualizing the formalization decision of informal firms as a strategic decision and considering the role of firms' aspirations in shaping informal firms' interpretation and evaluation of the prospect of formalization opens up important avenues for understanding how the formalization decisions of informal firms play out. This view thus provides expanded opportunities for management scholars to contribute to building a robust theory of the informal economy.

Chapter 3

NAVIGATING INSTITUTIONAL LOGICS IN TIMES OF ECONOMIC DISRUPTION: HOW ASPIRATIONS INTERACT TO INFLUENCE FIRM FORMALIZATION DECISIONS

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Abstract: Economic disruptions pose a threat to the survival of firms globally. However, informal firms are particularly at risk given their resource constraints, localized markets, and little access to formal risk and crisis support mechanisms. Whether to gain access to such provisions or not by formalizing is a key decision for informal firms, especially in times of economic disruption. We explore behavioral antecedents of this decision in the face of economic disruption, arguing it is subject to informal firms' financial and legitimacy aspirations. Drawing on the behavioral theory of the firm and institutional literatures, we suggest that informal firms' over (under) performance on financial and legitimacy aspirations are both independently and jointly associated with risk-seeking (risk-avoiding) behavior associated with formalization. We explore these effects by conducting three experimental vignette studies in a cluster of informal firms a few months into the Covid-19 pandemic in Ghana. The findings indicate that informal firms are willing to adopt higher levels of formalization when financial performance and legitimacy are above aspiration level, yet do not do so when financial performance and perceived legitimacy are below aspiration. We also find that owners/managers of informal firms showed a differential preference for the different levels of formalization based on the interaction between financial performance and legitimacy relative to aspiration. The study contributes to building a behavioral perspective to the formalization decision.

Keywords: Behavioral theory of the firm, informal firms, formalization, institutional logics, Covid-19 pandemic.

3.0 INTRODUCTION

How firms respond to threats from environmental change is fundamental to theories of competitive advantage and survival (Bradley, Aldrich, Shepherd, & Wiklund, 2011; Covin & Slevin, 1989). Firms respond to different threat levels from competitive action, technological changes, and policy or economic shocks (Amankwah-Amoah, 2016; Amankwah-Amoah, Antwi-Agyei, & Zhang, 2018; Chakrabarti, 2015; Silverman, Nickerson, & Freeman, 1997; Wenzel, Stanske, & Lieberman, 2021). However, firms are more likely to face threats to their survival when changes lead to extreme uncertainty in the business environment (Anderson & Tushman, 2001). Economic disruptions - radical and at least partly unforeseen changes to the macroeconomic environment - are a key source of such uncertainty (Cerrato, Alessandri, & Depperu, 2016; Foss, 2020). Widespread economic disruption such as that posed by the Great Recession of 2008 and the COVID-19 pandemic can cause unpredictable and significant downward shifts in the level of demand and dramatically alter the level of resources available in the environment of a firm (Alessandri, Cerrato, & Depperu, 2014; Chakrabarti, 2015). Such rapid and unforeseen changes can also cause high uncertainty within business value chains (Narula, 2020) and create a potential for substantial losses making them a significant threat to firm performance and survival.

Informal firms – unregistered entities or entities hidden from taxation and regulation (De Castro et al., 2014; La Porta & Shleifer, 2008; Mcgahan, 2012)- are particularly affected by the uncertainties created by economic disruptions. Informal firms are frequently resource-constrained owing to their small sizes and the localized nature of their markets (Slade Shantz et al., 2018; Tonoyan et al., 2010; Williams et al., 2017). Furthermore, being illegal, informal firms lack the legitimacy to access formal risk-pooling mechanisms such as insurance and government support services (Assenova & Sorenson, 2017; Fajnzylber et al., 2011; Rand & Torm, 2012) The lack of access to broader formal markets and crisis support mechanisms make them very vulnerable in times of economic disruptions. However, "although they have been nearly absent from academic research…, informal firms represent more the norm than the exception among small- and medium-sized enterprises (SMEs) in many developing countries" (Assenova & Sorenson, 2017: 805). Indeed, informal firms can contribute as much as 60% of GDP and 90% of jobs in developing economies where they are most prevalent. Thus, making the survival of such firms critical to the welfare of individuals and whole economies.

Economic disruptions present decision-makers of informal firms with a paradox in their quest to ensure firm survival and/or improved performance. On the one hand, they may respond to the extremely high uncertainty in the business environment by avoiding risky change and becoming even more dependent on familiar, informal institutional support arrangements and localized markets to ensure their survival. On the other hand, they could register their businesses to take advantage of the broader formal markets, risk-pooling mechanisms, and possibly government rescue packages that become available for formal businesses in macroeconomic crises. Indeed, some governments of countries with large informal economies report that rescue policies devised for formal firms have led to a sudden surge in formalization (thebftonline.com, 2020).

Formalization – registering with national agencies responsible for business registration and complying with formal regulations associated with business operations and taxes (Godfrey, 2011; Siqueira, Webb, & Bruton, 2016; Williams, Martinez-Perez, & Kedir, 2017) – is, however, a risky or uncertain decision. It involves shifting from one institutional logic to another (Sutter et al., 2017), with each logic governed by a different set of organizing principles (Reay & Hinings, 2009). Formalization, therefore, encompasses a fundamental alteration of firms' operations, which introduces substantial uncertainty for a decision-maker regarding the prospects of remaining informal versus becoming formal. The substantial change to a firm's operations and the vast number of potentially relevant policy variables that have to be considered make it difficult for managers to accurately specify the cost-benefit trade-off of formalization due to bounded rationality (Gavetti & Levinthal, 2000). Moreover, economic disruptions exacerbate the uncertainty and potential losses that come with key organizational decisions (Cerrato et al., 2016; Foss, 2020). Hence, economic disruptions may trigger unique responses to the uncertainty associated with the formalization decision that may differ from stable economic environments. We, therefore, sidestep the existing literature's focus on the cost-benefit calculus of formalization (e.g., Blackman, 2000; de Mel, McKenzie, & Woodruff, 2013; de Soto, 1989; Perry, Maloney, Arias, Fajnzylber, & Saavedra-chanduvi, 2007; Siqueira, Webb, & Bruton, 2016) to investigate the behavioral antecedents to formalization decisions in economic disruptions. We focus specifically on the economic crisis that followed the COVID-19 pandemic.

We argue that even though persevering with familiar, informal institutions and ways of doing business improves informal firms' likelihood of survival in times of crises (Wenzel et al., 2021), decision-makers will also be attracted to the broader market and risk-pooling mechanisms of formal institutions. This is because the broader market and support mechanism available to formal firms have productivity and performance advantages (Assenova & Sorenson, 2017;

Benjamin & Mbaye, 2012; La Porta & Schleifer, 2014) that may go beyond firm survival to improving firm performance. Therefore, informal firms may be faced with a balancing act between seeking survival benefits of legitimacy before stakeholders of informal institutions and acquiring the potential performance benefits of aligning with formal institutions.

Moreover, we emphasize that informal firms exist because stakeholders of informal institutions legitimize their actions (Webb et al., 2013, 2009). Accordingly, informal firms' legitimacy among informal institutional stakeholders can be regarded as an aspiration pursued in parallel to financial performance. The concurrent pursuit of several, often conflicting, aspirations has recently come to be seen as an organizational norm rather than an exception (Gaba & Greve, 2019; Obloj & Sengul, 2020). As such, we argue that informal firms' aspirations related to financial performance and legitimacy can act independently and simultaneously to influence their formalization decisions in the face of economic disruptions. Accordingly, the focal question of this paper is *how do different aspirations jointly influence informal firms' decisions to formalize in times of economic disruption*? We adopt the experimental vignette methodology (EVM) on a unique sample of informal firm owners and managers based in a large cluster of informal firms in Ghana between July and August 2020.

In contrast to the rational cost-benefit model, our research design allows us to understand firms' willingness to formalize as a function of the fulfillment of their aspirations. Embedding our arguments in the behavioral theory of the firm (BTOF) (Cyert and March, 1963) and threat rigidity hypothesis (Staw et al., 1981), we reason that, in times of extreme uncertainty typified by economic disruptions, informal firms' over (under)-performance on both financial goals and informal legitimacy goals should on their own be associated with risk-seeking (risk-avoiding) behavior. We also test predictions of the interaction between these effects.

We employed three vignette experiments that allow us to explore: 1) The effect of the performance aspiration of owners/managers of informal firms on their willingness to formalize; 2) the effect of the informal legitimacy aspiration of owners/managers of informal firms on their willingness to formalize, and 3) the interaction effect between performance and informal legitimacy aspirations on the willingness of owners/managers of informal firms to formalize.

Our results suggest, firstly, that in times of economic disruption, informal firms are more willing to adopt higher levels of formalization when sales performance is above aspiration but less willing to do so when sales performance is below aspiration. We argue that economic disruption strains the already limited information processing abilities of informal firm owners/managers. Thus, in times of economic disruption, the challenges of formalization are increased further due to the bounded rationality of managers, making them risk-averse towards the prospect of formalization. This risk aversion is exacerbated when financial performance is below aspiration but eased when performance is above aspiration. Secondly, we find that informal firms that are highly dependent on informal institutional arrangements become more willing to adopt higher levels of formalization if they perceive that their legitimacy among stakeholders of informal institutions is above aspiration but less willing to do so if legitimacy is below aspiration. The effect of legitimacy above aspiration level is, however, not significantly different from the willingness to formalize when legitimacy is equal to aspiration. Finally, we find that owners/managers of informal firms showed a differential preference for the different levels of formalization based on the interaction between legitimacy and financial performance relative to aspiration.

With this research, we contribute by challenging two implicit but important assumptions in the emerging literature on firm formalization, namely; (1) that the decision to formalize is a result of rational or quasi-rational cost-benefit optimization; and (2) that firm performance (e.g., profit, employee number, etc.) is the singular firm-level aspiration that influences informal firms' decisions to formalize. We find that in response to the complexity of the formalization decision, decision-makers rely on both financial performance and legitimacy aspirations to make judgments about formalization due to bounded rationality. Our study thus emphasizes the boundedly rational nature of the formalization decision and the role of multiple firm-level aspirations in influencing formalization decisions.

Secondly, the study extends BTOF literature on firm behavior in times of crises to firms that operate outside the prescriptions of formal institutions. Even though part of BTOF addresses different types of organizations (Rousseau, Bromiley, & Berrone, 2020), previous research has focused on formal firms. Informal firms operate in contexts characterized by weak or absent formal institutional support. In times of widespread disruptions, the absence of such robust support increases the complexity of engaging in a risky organizational change such as formalization. Further, informal firms frequently rely on legitimacy before stakeholders of informal institutions for existence. Hence legitimacy before such stakeholders is a key aspiration pursued simultaneously with financial goals. How firms balance multiple aspirations and their attendant stakeholders in times of economic disruption is thus an important extension of the current discourse.

Finally, by drawing on BTOF to explain the movement of informal firms from the informal logic of market exchange to the formal, we unearth additional antecedents by which the agency of organizational actors contributes to variations in firms' response to the presence of multiple institutional logics. The presence of multiple institutional logics opens firms to multiple paths to legitimacy (Ocasio & Radoynovska, 2016), resources, and alternative logics of action (Seo & Douglas Creed, 2002). Our study suggests that the multiple aspirations pursued by firms act independently and jointly in influencing firms' response to the presence of multiple and sometimes contradictory institutional logics.

3.1 THEORETICAL BACKGROUND

To provide an initial framework for exploring informal firms' formalizing decisions, we draw on the institutional theory and BTOF literatures. Institutional theory helps to understand how the absence of formal institutions creates multiple logics through which firms can legitimize economic transactions. BTOF helps to understand firm risk-taking in the face of uncertainty. It is here used to understand how financial performance and perceived legitimacy relative to aspiration level influence informal firms' decision to move from one institutional logic to another in periods of economic disruption.

Institutions and firm informality

Formal institutional arrangements provide the guiding principles of economic exchange. Formalized laws, rules, systems, and regulations prescribe what is socially acceptable, thereby providing constraints and incentives that promote lawful behavior in economic exchange (North, 1990). However, in many emerging and developing economies, the complete absence or ineffective enforcement of formal institutional prescriptions implies that formal institutional arrangements are frequently substituted wholly or partially by robust informal institutional arrangements (Webb et al., 2019). Firms can, therefore, become reliant on localized values and norms that govern and support economic exchange rather than country-wide formal regulations and support mechanisms (Tonoyan et al., 2010; Webb et al., 2019; Williams et al., 2017). The activities of such firms are therefore characterized by the absence of state or otherwise formally regulated forms of exchange and their replacement by socially monitored transactions (Portes and Haller, 2005). In practice, such firms, for example, rely on customary rules governing property rights and access to production resources and on non-formal sources of lending (Meyer et al., 2009; Webb et al., 2014), rather than banks or other formal lenders. The literature considers these firms as informal firms. We define informal firms as "firms that conduct market-based activities with legal goods produced and distributed without regard for taxation or regulation" (De Castro et al., 2014:76).

Firms operating by the logic of informal market exchange are pervasive globally, accounting for about 31.9% of GDP on average across 158 countries while reaching as high as 62.3% for some developing countries (Medina & Schneider, 2018). Additionally, informal firms employ over 60% of the world's working population, again predominantly in developing and emerging economies (ILO, 2018). Indeed, "although they have been nearly absent from academic research…, informal firms represent more the norm than the exception among small- and medium-sized enterprises (SMEs) in many developing countries" (Assenova & Sorenson, 2017: 805).

Informal firms and the decision to formalize

In spite of the widespread presence of informal firms, especially in developing economies, the conventional understanding has been that firms that do not initiate their operations in compliance with laws and regulations lack the required legitimacy to operate and are exposed to the liabilities of newness (Bitektine, 2011; Singh et al., 1986). Indeed, operating in the informal economy means that informal firms lack access to certain sources of financial, human, and state-level resources that lead to superior firm performance (Assenova & Sorenson, 2017). Furthermore, empirical research confirms that firms operating in compliance with formal rules and regulations perform better than informal firms under the same macro-environmental conditions (Benjamin & Mbaye, 2012; La Porta & Schleifer, 2014; Ahmadou A. Mbaye & Benjamin, 2015; Rand & Torm, 2012).

On the other hand, the literature suggests that informal firms exist because stakeholders of informal institutions perceive them as legitimate (Webb et al., 2013, 2009). Hence, informal firms exist because they have access to an alternative source of legitimacy from that provided by aligning to formal institutional demands (Thapa Karki, Xheneti, & Madden, 2020). Indeed, the institutional literature argues that the presence of multiple institutional frameworks in a particular field means that firms have multiple paths to legitimacy (Ocasio & Radoynovska, 2016), resources, and alternative logics of action (Greve & Man Zhang, 2017; Seo & Creed, 2002). Firms present in such environments have the capacity to constitute themselves by choosing identities and commitments from the menu of choices presented by the multiple constituencies (Kraatz and Block, 2008). By aligning to legitimacy requirements of informal institutional stakeholders, informal firms acquire access to alternative sources of financial and human resources as well as customers (Meyer et al., 2009; Webb et al., 2014; Williams & Martinez-Perez, 2014).

Although such legitimacy may be substantial, the localized nature of these informal sources of resources and customers (Slade Shantz et al., 2018; Tonoyan et al., 2010; Williams et al., 2017) means that informal firms are left out of the broader market and the more efficient resources provided by formal institutional arrangements. This is because informality denies firms the legitimacy to operate more openly, to access to a broader range of contracts, to access formal risk-pooling mechanisms, government-provided business development services, and increased investment (Webb, Khoury, & Hitt, 2019; Fajnzylber, Maloney, & Montes-Rojas, 2011; La Porta & Schleifer, 2014; Rand & Torm, 2012). Moreover, informal firms are constantly exposed to the possibility of being closed down by disapproving state-level authorities. At the societal level, skirting of taxes and other regulations means that informal firms contribute to shortfalls in taxes, increase in precarious labor conditions, and higher levels of pollution (Blackman et al., 2006; ILO, 2018; Levy, 2008). However, despite the inherent benefits of formalization and the persistent interventions from governments and other international organizations, efforts to formalize informal firms have yielded little results (Cravo & Piza, 2019; Floridi et al., 2020; Narula, 2020). Thus, it is still unclear what triggers the formalization of informal firms.

Firm formalization occurs when a business owner registers a firm with the appointed authorities and complies with formal regulations associated with operations (Godfrey, 2011; Siqueira et al., 2016; Williams et al., 2017). Despite the legitimacy that a previously informal firm gains by formalizing, formalizing also means that such a firm may be considered an outlier bucking the informal rules that others followed (De Castro et al., 2014). A formalizing informal firm thus loses (at least to some extent) its legitimacy among stakeholders of informal institutions (Thapa Karki et al., 2020; De Castro et al., 2014). For example, suppliers may work with an informal firm with the common implicit rule that the firm is informal and thus does not require invoices. Not providing an invoice post a sale is vital for such a supplier because it lowers their taxes; they can keep the percentage of sales taxes and are free of any liability. Once the informal firm decides to formalize, their suppliers lose interest in working with them; they increase their prices, delay their shipments, and might even stop providing supplies to the firm.[4] In addition to this loss of legitimacy among informal stakeholders, the cost of formalization for an informal firm also goes beyond a standard payment of a registration fee and the payment of taxes. The reality of formalization for an informal firm involves transitioning from "one institutional framework based on low standards (i.e., standards underpinning the informal market) to another institutional

[4] This example was suggested by an anonymous reviewer at 81st Academy of Management Annual meeting, 2021.

framework with specified and enforced standards of quality, efficiency, and volume (i.e., standards underpinning the formal market)" (Sutter et al., 2017: 421-422). Therefore, the movement between these two institutional frameworks or logics is an uncertain decision with a potentially unsuccessful outcome (Ulyssea, 2018).

The behavioral theory of the firm and the decision to formalize

To understand why and when informal firms may be triggered to act in favor of the decision to formalize or not, we draw on the BTOF to understand the role of firm aspirations in the decision to formalize. The BTOF is an important theory of decision-making and uncertain organizational change (Cyert and March, 1963; Argote & Greve, 2007), predicting organizational change and related risk-taking based on the differences between aspirational and realized performance (Cyert & March, 1963; Shinkle, 2012). It is, therefore, well suited for understanding firm risk-taking associated with formalization in economic disruption. Organizational aspirations, frequently referred to as goals (Shinkle, 2012), are therefore central to understanding firm responses to change from the BTOF perspective. "An aspiration level represents the smallest outcome that would be deemed satisfactory by the decision-maker, given the current choice situation" (Schneider, 1992: 1053). Aspiration levels are constructed from the firm's historical performance or its observation of other, similar firms (Greve, 1998). When performance falls below aspiration, organizations engage in problemistic search, looking for ways to raise performance above the aspiration level (Bromiley, 2004). Problemistic search entails exploring new actions or opportunities that will change the firm's existing operations to improve performance since existing operations do not appear sufficient to generate the desired performance level (Cerrato et al., 2016). Hence, organizational change occurs more frequently when performance is below, rather than above, the aspiration level (Shinkle, 2012). Conversely, firms interpret performance above aspiration as a success, which in turn depresses search and leads to persistence (Greve & Gaba, 2020). Thus firms with performance above aspiration will see it as a good reason to avoid risky or uncertain change (Baum et al., 2005; Greve, 2003b).

In the presence of multiple aspirations, the assumption of sequential attention to goals (Cyert & March, 1963) assumes that lower-priority aspirations will be addressed only if higher-priority aspirations signal success (Greve, 2008). However, recent studies (Gaba & Greve, 2019; Smulowitz, Rousseau, & Bromiley, 2020) have relaxed the assumption of sequential attention. The argument is that "firm aspirations rarely have a clear hierarchy but rather are interdependent, with some compatible and some conflicting"(Gaba & Greve, 2019: 647). Further, even with hierarchical aspirations, firms do not entirely ignore a lower-priority aspiration before meeting their higher-priority aspiration and completely ignore their higher-priority aspiration when they pass a threshold (Smulowitz et al., 2020). The relaxation of the sequential attention to aspirations assumption means it is possible to study multiple aspirations being pursued simultaneously by a firm.

The behavioral theory of the firm has also been extended to understanding organizational change in the face of economic disruption, understood here as a radical and at least partially unforeseen event that has drastic impact and consequences on the macroeconomic environment (Cerrato, Alessandri, & Depperu, 2016; Foss, 2020). Economic disruption can cause unpredictable, significant downward shifts in the level of demand and dramatically alter the level of resources available in the environment of a firm (Alessandri et al., 2014; Cerrato et al., 2016). Behavioral theorists have drawn on the threat rigidity hypothesis (Staw et al., 1981) to argue that the survival threats from widespread economic disruption can trigger stress and anxiety among managers and lead to restrictions on information processing and tightening of controls (Chen & Miller, 2007). Indeed, the behavioral theory of the firms asserts that managers whose firms are faced with a possible threat to survival become risk-averse (March & Shapira, 1987, 1992) to avoid putting their firms in danger. Hence, contrary to being risk-seeking due to firm performance below aspiration level, managers of firms with performance below aspiration will become risk-averse as a result of the survival threats of economic disruptions.

The risk propensities of firms in times of economic disruptions are, however, moderated by the resource endowment of the focal firm. Organizational slack - excess resources a firm possesses above what it needs for current operations - may offer a buffer against the impact of a less munificent environment, possibly protecting the firm and changing the nature of the firm's response to the threat (Cerrato et al., 2016; Zona, 2012). Indeed, existing research finds that in the presence of high uncertainty and large potential losses, firms that have slack resources are more willing to engage in risky changes, including high-value acquisitions (Alessandri et al., 2014; Cerrato et al., 2016; Kuusela, Keil, & Maula, 2017), increased innovation investment (Zona, 2012) and R&D intensity (Chen & Miller, 2007). Organizational slack allows a firm to conduct slack search - using excess firm resources to experiment with new actions or strategies since the firm can absorb losses from such activities - as opposed to problemistic search (Alessandri et al., 2014; Cyert & March, 1963)

Firm performance and informal firm decision to formalize

Conventionally, formalization is viewed as superior to operating informally, especially with respect to productivity and firm performance (Assenova & Sorenson, 2017; Benjamin & Mbaye, 2012; La Porta & Schleifer, 2014). This is because formality in comparison to informality gives firms legitimacy to operate more openly, a broader market reach, access to a broader range of contracts, risk pooling mechanisms, government-provided business development services, and increased investment, which all leads to better performance (Webb, Khoury, & Hitt, 2019; Fajnzylber, Maloney, & Montes-Rojas, 2011; La Porta & Schleifer, 2014; Rand & Torm, 2012). While informality provides firms with a substantial degree of adaptability and flexibility in their operations (Narula, 2020), the governance and support mechanisms of informal markets are limited in their ability to support anonymous transactions and provide the legal framework necessary for large-scale investment (Sutter et al., 2017). What the informal logic of market exchange has in adaptability and flexibility, it lacks in scalability. Thus the informal institutional logic lacks the framework to support firm growth and performance beyond a certain point.

However, formalization is an uncertain decision for informal firms. Formalization for an informal firm regularly implies making a substantial financial investment, altering long-held relationships with suppliers, customers, and other stakeholders, and making fundamental changes to the firm's traditional mode of operation (Godfrey, 2011; Sutter et al., 2017). The firms' operations may be changed from transactions that rely on mutual trust and word-of-mouth to relying on detailed contractual agreements. Quality checks on the firm's products and suppliers' inputs may also be changed from visual inspection and touching to compliance with legal standards (Sutter et al., 2017). The behavioral theory of the firm (BTOF) highlights that the cognitive limitations of managers mean that they will struggle to incorporate these differences into their existing mental models (Cerrato et al., 2016; Cyert & March, 1963). Additionally, the weak institutional environment and the frequently unstable regulatory track records of countries with large informal economies (Narula, 2020) increase the number of potentially relevant policy variables that managers of informal firms face. The vast number of potentially relevant policy variables and the complex set of interrelationships among these variables limits managers' ability to accurately specify the consequences of their formalization decision owing to bounded rationality (Gavetti & Levinthal, 2000). We maintain that the formalization decision of an informal firm is, therefore, an uncertain decision that could end up being unsuccessful and leading to substantial losses in terms of time and money invested.

Based on the tenets of BTOF, however, it seems plausible to expect that in stable macroeconomic environments, formalization will be an attractive option for performance improvement of underperforming informal firms – informal firms with performance below aspiration levels. According to BTOF, an underperforming firm will engage in problemistic search, exploring new actions or opportunities that will change the firm’s existing operations to improve performance since existing operations do not appear sufficient to generate the desired performance level. Formalizing the firm's operations to take advantage of broader market access, increased sources of investment inflows, and government-sponsored business support services is one of such strategies available to an underperforming informal firm. Despite the uncertainty surrounding the formalization decision, the search for potential performance improvement driven by the unsatisfactory result from current operations will make an informal firm more open to the prospect of improved performance from formalizing.

However, in times of economic disruptions, there is a substantial increase in the uncertainty and potential losses associated with formalization. Firstly, widespread economic disruption such as those posed by the Great Recession of 2008 and the COVID-19 pandemic can cause unpredictable, significant downward shifts in the level of demand and dramatically alter the level of resources available in the environment of a firm (Alessandri, Cerrato, & Depperu, 2014; Cerrato et al., 2016). Such rapid and unforeseen changes can also cause high uncertainties within business value chains and create a potential for substantial losses. The survival threats from the generally less munificent business environment can trigger stress and anxiety in managers and lead to restrictions on the already limited information processing capacity of informal firm managers (Chen & Miller, 2007). Therefore, the manager of informal firms may become less willing to take risks and shift their attention to tightening controls to avoid putting their firms in danger (March & Shapira, 1987, 1992). These arguments are particularly relevant given that the small nature of informal firms and localized market and resource access that is provided by informal institutional arrangements mean that informal firms already experience far less environmental munificence relative to their formal counterparts.

Further, the sudden nature of economic disruptions means that the full set of possible policy actions and the outcomes of such actions available to policymakers becomes ambiguous, especially in the early days of a disruption (Foss, 2020). Such ambiguity adds to the vast number of potentially relevant policy variables that owners/managers of informal firms have to consider and make it difficult, if not impossible, for managers to accurately specify the consequences of the formalization (Gavetti & Levinthal, 2000). Hence, the survival threat of widespread economic disruptions and the increased inability of managers to estimate the consequences of formalization mean that managers underperforming informal firms will shift attention to protecting the firm from further danger and are more likely to reduce risk-taking propensities. On the other hand, managers of informal firms that experience performance above aspiration level in times of disruption may see it as an indication that their firms have a valuable resource that is a good fit with the current environment (Ref & Shapira, 2017). Therefore, they may see the good match between their resources and the current environment as a source of opportunity to take actions or adopt strategies that go beyond immediate firm survival to support long-term success (Namatovu & Larsen, 2021) even beyond the economic disruption. Formalization is one such strategy that expands the potential market reach of an informal firm. Additionally, because slack is normally present in relatively successful firms (Ref & Shapira, 2017), managers of overperforming informal may perceive relative internal resource slack, especially in contrast to underperforming informal firms in the less munificent external resource environment. The resource slack resulting from overperformance may offer a buffer against the impact of a less munificent environment, changing managers' perception of the threat (Cerrato et al., 2016; Zona, 2012). This is especially important given that informal firms are less efficient and productive than their formal counterparts (Benjamin & Mbaye, 2012; La Porta & Schleifer, 2014; Sutter et al., 2017) and thus regularly operate below their resource capacity. The opportunity to secure long-term firm performance and managers' altered perceptions of the threat of firm failure mean that informal firms performing above aspiration in times of economic disruption will be more willing to explore the market expanding and performance improving benefits of formalization.

Yet still, recent research in the informal sector (Williams et al., 2017; Witte & Larsen, 2019) indicates that firms may operate in the informal economy as a way of focusing their limited resources on experimenting or overcoming alternative liabilities of newness present in contexts of weak formal institutions, thus laying a stronger foundation for subsequent performance and growth in the formal economy. In this respect, informal firms can be expected to move into the formal economy once they have completed experimentation, overcome alternative liabilities of newness, or experienced predictable performance improvements in the informal sector. Based on the above arguments, we propose that in times of economic disruption, the altered perception of threat, the opportunity to secure long-term firm performance, and the presence of resource slack means that informal firms with performance above aspiration level will be more willing to formalize relative to informal firms with performance above aspiration level. Formally;

Hypothesis 1a (H1a): In times of economic disruption, informal firms with financial performance below aspiration level will be risk-averse and thus less willing to adopt higher levels of formalization

Hypothesis 1b (H1b): In times of economic disruption, informal firms with financial performance above aspiration level will be risk-seeking and thus more willing to adopt higher levels of formalization

Informal firm legitimacy aspirations and the decision to formalize

Informal firms exist because stakeholders of informal institutions hold them as legitimate (Webb et al., 2013, 2009). Thus, contrary to the sociopolitical legitimacy acquired by formal firms (Assenova & Sorenson, 2017), informal firms can be argued to have "sociocultural" legitimacy due to aligning with informal institutional legitimacy requirements such as customary rules governing property rights and access to production resources (Webb et al., 2009). As such, informal firms rely on this legitimacy before informal institutional stakeholders to have access to resources, markets, and in many cases, competitive advantage (de Andrade et al., 2016; De Castro et al., 2014; Williams & Martinez-Perez, 2014). In essence, informal firms rely on such sociocultural legitimacy for existence and survival. We, therefore, posit that informal firms aspire to maintain or improve this legitimacy with informal institutions and hence will strive to continuously demonstrate symbolic and material conformity with cultural norms and expectations of the informal institutional stakeholders. Informal firms must, for example, be ready to buy in advance from suppliers, sell on credit to customers without a written contract/invoice or lend out equipment/machinery to a competitor (Slade Shantz et al., 2018; Webb et al., 2009).

Informal firms are also expected to rely on informal institutional arrangements, such as collective ostracization, to sanction default rather than legal settlement (Webb et al., 2009). The regular alignment of an informal firm with such norms and values gives a firm the legitimacy to demand such institutionalized behaviors from other informal firms or stakeholders. Hence, attempting to elicit such institutionalized behaviors from others may be unsuccessful when a firm fails to build the required legitimacy since these others may view the owner/manager as bucking customs that others followed or having ties to enforcement agents (De Castro et al., 2014; Webb et al., 2009; Wiegand, 1994).

However, the diversity of informal firms and the modes by which they create and capture value means that it is plausible to expect that informal firms differ in their level of dependence on sociocultural legitimacy for survival (Agbleze & Larsen, 2020). Thus, we focus on conditions under which informal firms have a high dependence on informal legitimacy for survival to argue that an informal firm will have high levels of organizational inertia towards risky action that favor improving performance but threaten the level of legitimacy it has before stakeholders of informal institutions. In general, therefore, we expect that informal legitimacy aspirations will be negatively related to informal firm formalization prospects. This is especially because firms that formalize may be considered outliers bucking the informal rules that others followed (De Castro et al., 2014) and thus (at least to some extent) lose their legitimacy with informal institutional stakeholders. In essence, we argue that when an informal firm is highly dependent on informal institutions for survival, it will be more attuned to the requirements of informal institutional stakeholders and may be willing to forgo the performance benefits of formalization to attain the survival benefits of satisfying informal institutional expectations. Hence we expect that informal firms that perceive their legitimacy in the sight of informal institutions as below their aspiration level will be risk-averse towards the prospect of formalization and will be motivated to adopt lower levels of formalization (to avoid further loss of legitimacy). In times of widespread economic disruption, the survival threat of the less munificent environment and the increased inability of managers to estimate the consequences of formalization will further exacerbate the risk aversion.

Conversely, managers of informal firms with perceived informal legitimacy above aspiration level are more likely to allocate more attention to improving firm performance. Further, informal firms with “excess” legitimacy may be willing to experiment with their abundant goodwill to secure long-term performance improvements. Formalization may therefore be one such option available to informal firms with high informal legitimacy. This is feasible in the presence of formal institutional voids because informal firms can explore levels of formality rather than total formalization. Informal firms may register their business names and pay taxes for formal but have informal agreements and transaction relationships with some employees, customers, and suppliers. In that way, the informal firm reduces the cost of formalizing by reducing its running costs and taxes. At the same time, the informal firm is able to reduce the backlash of formalization by keeping informal transactions with informal stakeholders that might still be willing to do business with it owing to its initially high legitimacy. In times of widespread economic disruption, we expect that the less munificent external environment and the increased uncertainty associated with the benefits of formalization mean that willingness of firms with high legitimacy to explore the benefits of formalization will be attenuated. However, we expect that it would remain significantly higher relative to informal firms with low legitimacy. Hence;

Hypothesis 2a (H2a): In times of economic disruption, informal firms with legitimacy below aspiration level will be risk-averse and thus less willing to adopt higher levels of formalization

Hypothesis 2b (H2b): In times of economic disruption, informal firms with legitimacy above aspiration level will be risk-seeking and thus more willing to adopt higher levels of formalize

Interaction between performance and legitimacy aspirations

The BTOF recognizes that decision-makers pursue multiple aspirations that result from internal bargaining and that comparisons of realized aspiration variables with aspiration levels determine organizational actions (Cyert & March, 1963). However, the sequential attention aspirations tenet of BTOF means that decision-makers treat different aspirations as constraints to be satisfied in some order of priority. Hence, the fulfillment of an active aspiration shifts the attention to the next aspiration (Greve, 2008). Additionally, some aspirations are causally linked in aspiration hierarchies in such a way that fulfillment of one aspiration helps an actor fulfill the next (March & Simon, 1958). On the whole, however, organizational aspirations rarely have a clear hierarchy but rather are interdependent, with some compatible and some conflicting (Gaba & Greve, 2019).

In the first place, the legitimacy and performance aspirations of informal firms can be considered as hierarchically linked aspirations. Legitimacy aspirations of the informal firm ensure the existence and survival of informal firms who otherwise are illegitimate as far as formal institutions are concerned. Hence, since aspirations closely related to survival take high priority (Greve, 2008), it is reasonable to expect that the performance aspirations of informal firms gain attention after legitimacy aspirations are met. Additionally, a firm with an assurance of survival becomes free to shift its attention and resources towards performance improvements (Ocasio, 1997). On the other hand, legitimacy aspirations cannot be totally abandoned when a firm achieves its desired level of legitimacy; informal firms to do not engage in legitimizing activities may be considered outliers and penalized. Hence, legitimacy aspirations are pursued concurrently as performance aspirations. Additionally, legitimate firms can still be underperforming firms. An informal firm that aligns with informal institutional demands but does not produce goods and services that customers in the informal economy deem valuable may still not meet its performance aspirations and suffer firm failure. Hence, the survival benefit of being legitimate is not independent of performance-enhancement activities, e.g., good financial management or resource allocation decisions. Thus the legitimacy and performance aspirations of informal firms can be considered both concurrent and interdependent.

Further, the localized nature of informal norms and values that govern informal economic exchange means that the informal logic of market exchange is limited in its market reach and the volume of transactions it can monitor. Informal firms with high dependence on sociocultural legitimacy are therefore faced with a hard border regarding the potential improvement in performance they can attain without incurring severe sanctions due to being found in default of informal institutional norms. Pursuing performance enhancement through formalizing an informal that is highly dependent on sociocultural legitimacy thus means the potential loss of the survival benefits of being legitimate before informal stakeholders. Hence, for informal firms with high dependence on informal institutional norms, pursuing performance aspiration levels above those offered by informal institutional arrangements may lead to potential conflicts between the attainment of their legitimacy aspirations and the attainment of their performance aspirations. This conflict is brought about because both aspirations at this point are supported by alternative institutional logics.

Drawing on recent literature on firms' pursuit of multiple aspirations (i.e., Gaba & Greve, 2019), we argue that informal firms' preference towards formalization, as a performance-enhancing strategy, will be influenced by managers' concurrent consideration of attainment relative to aspiration level on both the legitimacy and performance aspirations. The risk-taking propensities of managers in this context depend on whether the decision-makers focus their attention on their aspiration level or the threat to firm survival. Firstly, low performance on multiple aspirations influences managers to become survival-focused similar to their response to severe underperformance on a single aspiration (Gaba & Greve, 2019; March & Shapira, 1992). Sudden and widespread economic disruptions will aggravate such a shift in attention to firm survival. On the contrary, we expect such concerns for firm survival driven by low performance on multiple aspirations to be absent in firms with high performance on both legitimacy and performance aspirations.

Additionally, because slack usually is present in relatively successful firms (Ref & Shapira, 2017), in times of economic disruptions, firms with high performance on both aspirations may focus attention on ensuring long-term performance beyond the economic downturn. Hence, such firms may be more willing to explore the broader market reach that formalization provides relative to firms with underperformance on both aspirations. Further, given that legitimacy aspirations have stronger implications for the long-term survival of an informal firm relative to performance aspirations, we expect that underperformance on legitimacy aspirations should shift managerial attention closer to a survival focus than underperformance on performance aspirations. We thus expect an informal firm with legitimacy below aspiration but performance above aspiration to be less risk-seeking compared to an informal firm with legitimacy above aspiration but performance above aspiration. On the whole we expect the threat of failure in times of economc uncertainty to make slack search the strongest indicator of to formalize. Hence we expect that firms with overperformance on legitimacy and performance aspiration to be the most willing to formalize. Thus we hypothesize that;

Hypothesis 3a (H3a): In times of economic disruption, informal firms with both legitimacy and financial performance below aspiration level will be less willing to adopt higher levels of formalization compared to informal firms with legitimacy below and financial performance above aspiration level

Hypothesis 3b (H3b): In times of economic disruption, informal firms with legitimacy below and financial performance above aspiration level will be less willing to adopt higher levels of formalization compared to informal firms with legitimacy above and financial performance below aspiration level

Hypothesis 3c (H3c): In times of economic disruption, informal firms with legitimacy above and financial performance below aspiration level will be less willing to adopt higher levels of formalization compared to informal firms with both legitimacy and financial performance above aspiration level

We summarize the above hypotheses in the two-by-two matrix in Figure 3.1

Performance relative to aspiration level

Legitimacy relative to aspiration Level

	Higher	Lower
Higher	Informal firms are **risk-seeking** – highest level of formalization	Informal firms are **risk-averse** – high level of formalization
Lower	Informal firms are **risk-seeking** **-** low level of formalization	Informal firms are more **risk-averse** – lowest level of formalization

Figure 3.1: Interaction between legitimacy and financial performance aspirations

3.2 METHODS AND DATA

Experimental Vignette Methodology

To explore our research question, we conducted three experimental vignette methodology (EVM) (Aguinis & Bradley, 2014) studies. EVM studies consist of presenting participants with hypothetical scenarios and then asking participants to make explicit decisions, judgments, and choices or express behavioral preferences. EVM studies are appropriate in situations where it is impossible or unethical to manipulate variables of interest experimentally. Given that our key variables; financial performance, and legitimacy have implications for the survival and competitive advantage of firms involved (de Andrade et al., 2016; DeCastro et al., 2014; Williams & Martinez-Perez, 2014; Webb et al., 2009), we found it unethical in this study to manipulate the level of financial performance or legitimacy of sampled firms in a field setting. However, to improve the external validity of our study, the three studies involved a total of 669 owners/managers of informal firms in Cable and Wireless, a densely populated cluster of informal firms at Bubuashie, a suburb of Accra, Ghana. The sample was reduced to a total 636 after checking for the effectiveness of the manipulations for each study. Working with actual owners/managers of informal firms allowed us to conduct the studies with individuals familiar with firm informality and who were faced with the prospect of formalization. Such a sample minimized the possibility that participants' lack of familiarity with the focal decision task would influence our empirical observations (Denis A. Grégoire & Shepherd, 2012). To further improve the realism of the EVM, the vignettes were administered to each respondent on their respective work premises within the cluster.

Context and community entry

The Cable and Wireless cluster consists of approximately 4,000 unauthorized structures occupied by a total of 14,000 masters and apprentices who have been described as 'squatters' illegally occupying the lands of Ghana Post (public postal service) at Bubuashie (Joy online, 2017). Prior to the data collection, two research team members made several visits to the cluster to build working relationships with leaders and members of the cluster. The researchers had several meetings with the cluster leaders, discussing the activities, achievements, and challenges of the cluster. The researchers were given a tour of the cluster and invited to address a general meeting of the cluster members. At the meeting, leaders of the cluster introduced the researchers to members of the cluster present. Additionally, at the meeting, the research team informed leaders and members of the cluster about the purpose of the broader research project, which was "to understand the activities and decision-making practices of small and medium scale enterprises such as yours".

Preliminary qualitative data was collected for the broader project over two weeks in January 2019 from the Cable and Wireless cluster. Pilot studies for the current study were carried out in similar but smaller clusters of informal firms at multiple points between March 2020 and July 2020. Data for the three studies was collected over a total of 21 days from July 2020 to August 2020 with the help of four trained research assistants. Ghana confirmed its first case of Covid-19 on 12th March 2020, and the two major cities Accra and Kumasi, were put under lockdown between 29th March and 20th April 2020. Hence each respondent had been exposed to a period of more than three months of business operations in the economic disruption that followed the covid pandemic. Prior to the training of the research assistants, each vignette used in the experiment was translated into the three languages spoken by most of the owners and managers of the firms in the cluster; Akan, Ewe, and Ga. The translations were done by the experts at the Bureau of Ghana Languages, the national agency in charge of translating policy documents for the Government of Ghana. Each of the research assistants spoke at least two of these languages, and one of the authors reads and speaks two of these languages at least at the intermediate level.

Data collection procedure

We collected data for the three studies by implementing a within-subject experiment design. We conducted a 3x1 design for studies 1 and 2 and a 2x2 factorial design for study 3. The first two studies, study 1 and study 2, were conducted to explore the independent effect of financial performance and legitimacy, respectively. Study 3 was conducted to investigate the interaction effect between financial performance and legitimacy in explaining informal firms' willingness to formalize. The three studies were conducted sequentially within the same cluster. The cluster is administratively divided into six "zones" by the cluster leaders, with each zone having a "zone leader". For our study, each zone was divided into three roughly equal parts to each study. One part of each zone was therefore allocated to each study. The order of entry into the zones was determined randomly using a random number generator. At the beginning of each session, the enumerator greets the identified owner or manager of the firm and states the purpose of the research as "we are conducting research into how business is done in Ghana". The owner or manager is then randomly assigned to one of the multiple vignette sets[5] available for the relevant study using a random number generator. The enumerator then reads out the vignettes and the questionnaire that follows to the respondent from a tablet. Responses from the owner or manager are recorded on the same tablet.

In study 1, each participant was presented with three short scenarios (vignettes) that together make one vignette set. The short scenarios are about their hypothetical firm's financial performance (*Appendix D*). The scenarios represented the firm performing below, above, or equal to a stated aspiration level. The within-subject design implied that each participant in study 1 evaluated and responded to each of the three scenarios. In study 2, we presented each participant with three short scenarios (one vignette set) about firm legitimacy *(Appendix E)* to represent whether the firm was perceived as below, above, or equal to its aspiration level regarding legitimacy. The within-subject design implied that each participant in study 2 evaluated and responded to each of the three scenarios. In study 3, we presented each respondent with four scenarios *(Appendix F),* and each scenario had one manipulation each of both financial and legitimacy aspirations. The scenarios in study 3 used the same measures of financial performance and legitimacy from studies 1 and 2. The four scenarios included in the study were thus 1) legitimacy above aspiration level and financial performance above aspiration level (High legitimacy X High performance), 2) legitimacy below aspiration level and financial performance above aspiration level (Low legitimacy X High performance), 3) legitimacy above aspiration level and financial performance below aspiration level (High legitimacy X Low performance), 4) legitimacy below aspiration level and financial performance below aspiration level (Low legitimacy X Low performance). The within-subject design implied that each participant in study 3 evaluated and responded to four scenarios.

[5] Sample of vignette sets used for each study are presented in Appendix D to F

To prevent the order in which scenarios are presented to the participants from biasing our results, we used multiple versions of the vignette sets meant for each study. We used six different versions of the vignette set used in study 1 and six different versions of the vignette set used in study 2. Each of the six versions of vignette sets used in studies 1 and 2 had a different order combination of the three scenarios. In study 3, participants were assigned to one of eight different versions of the vignette set. Each version of the vignette set involved a different order of the four scenarios used in study 3. Following Gregoire and Sheperd (2012), the versions of vignette sets we used in each study were generated based on a Latin square design. After each scenario, respondents were asked to state their willingness to formalize on each of the three dimensions of formalization used in this study. Additionally, after responding to the randomly assigned vignette set, each participant answered a survey covering individual and firm-level factors used as control variables. Participants typically completed the survey that followed in 10 to 15 minutes. This procedure was observed for the three studies.

Measures

The wording of the variables in EVM studies requires a balancing act between consistency with established measures in academic literature and creating a hands-on environment that is reflective of the key informants' knowledge (Mellewigt, Thomas, Weller, & Zajac, 2017). Such a balance was particularly critical in our case, given that the generally low education level of informal economy owners/managers meant that it was necessary to reduce the complexity of our scenarios and emphasize realism. We relied on iterative feedback from two informal economy researchers outside the research team and two pilot studies in similar but smaller clusters in Ghana to refine our scenarios.

Financial performance

In this study, financial performance was conceptualized as sales performance. Conceptualizing financial performance as sales is appropriate in this context because informal firms across industries regularly do not keep records of financial transactions of the business (Thai, Oudin, Pasquier-Doumer, & Ngoc, 2017). Indeed, in extreme cases, some informal business owners do not distinguish between money for running the business and the money for running homes (Chen, 2005; Hussmanns, 2004). Hence, managers of informal firms regularly rely on sales figures to judge their firm's performance rather than profitability or return on investment. To explore the effect of informal firms' performance on their willingness to formalize, we manipulate sales performance at three levels; sales performance below, above, and equal to aspiration. To represent firm performance equal to aspiration level, for example, the scenario reads, "…imagine that you have set an objective for the imaginary business to make sales of Ghc 1000 a month. For the past four months, you have consistently met your monthly target". Even though BTOF studies focus on performance above or below aspiration level, we include achievement equal to aspiration level to compare achievement equal to aspiration level to discrepancies from the aspiration level. This addition allows us to ascertain if the decisions by the owners/managers when they are experiencing discrepancies from the aspiration level are significantly different from the decisions they will make if they were exactly achieving aspiration level

Legitimacy

To explore the effect of informal firms' legitimacy perception and their willingness to adopt the different levels of formalization, we manipulate legitimacy at three levels; legitimacy below, above, and equal to aspiration. We draw on the informal economy (Webb et al., 2013, 2009) and legitimacy (Alexiou & Wiggins, 2019) literatures to conceptualize legitimacy before stakeholders of informal institutions as the moral and cognitive legitimacy a firm acquires by aligning with the demands of informal institutional arrangement. Based on the proposed literatures, we operationalize legitimacy in our scenarios as 1) the recognition of an informal firm as an important member of a community because it is involved in the activities of the community (thus aligning with informal institutional expectations, moral legitimacy) and 2) the willingness of community members to identify with the firm by serving as customers, suppliers of raw materials and lenders of money to the firm (cognitive legitimacy). To represent legitimacy equal to aspiration for example, a portion of the scenario reads "…. For the past four months, your business has maintained its level of involvement in the activities of the community as compared to the past. The members of the community have therefore maintained the level to which they recognize your business as an important part of the community as compared to the past. This means that your business will maintain the ease with which it gets customers, supply of raw materials or borrows money from the people in the community compared to the past". After each scenario, participants were asked to rate their willingness to register their businesses name, register for the payment of taxes, and register their business at the municipal level as in study 1.

Level of formalization

To improve the realism of the decision to formalize presented with formalization decisions that reflect the business formalization process within the Ghanaian context where the study was conducted. After each scenario, participants were asked to rate their willingness to 1) register their business name with the Registrar General; 2) register with the Ghana Revenue Authority for the payment of national taxes; and 3) register with the Accra Municipal Assembly for the payment of municipal taxes on a five-point Likert scale anchored at "not willing" and "willing". The measure also had "undecided" as the neutral point. Each of the three steps in the formalization process in Ghana is administered by independent organizations, and firms frequently register with one or two of these organizations without registering with the other(s). Also, firms, after registering their business names, could register for tax at the national level without registering at the municipal level and vice versa. The level of formalization variable was then created in two steps. Firstly the results from respondents' willingness to register their businesses name, register for the payment of taxes, and register for payment of the municipal taxes were summed to form a sore on a scale of 3 to 15. A respondent who selected "not willing" on all three types of formalization scored a total of 3, a respondent who selected "undecided" on all three scored a total of 9, while a respondent who selected "willing" on all three scored a total of 15. In the second step, respondents who had a total score less than 5 were classified as being willing to adopt only a low formalization level, a score greater than 5 but less than 12 was classified as willing to adopt medium formalization, and a score of 12 or greater was classified as adopting high formalization level. Hence being categorized as low formalization means the respondent selected the highest willingness of "undecided" on a maximum of one type of formalization. Being classified as medium formalization means that the respondent could select a maximum of "willing" on only two types of formalization while selecting "not willing" on the third. All the rest were classified as being willing to adopt a high formalization. The individual scores on each type of formalization were also employed in conducting further analyses.

Controls

We control for several individual and firm-level factors that are likely to affect willingness to formalize and or are regularly controlled for informal firm formalization studies (Mahoney & Skousen, 2015; McKenzie & Sakho, 2010; Nguyen et al., 2014; Rand & Torm, 2012). At the individual level, we control for *age,* the age of the owner/manager measured in years; *Gender*, the gender of the owner/manager which was coded 1 for female and 0 for male; *Level of education* , coded 1 for none, 2 if the highest education was at the primary leve1, 3 for Junior High School, 4 for Senior high school and 5 for A-level/Diploma and above; *Industry experience*, log of the number of years the owner/manager has experience in the sector of the focal firm. *Legal responsibility* captured owner/managers' perception about responsibility to obey the laws of the state measured on a five-point Likert scale. *Cost of informality*[6] captured owner/managers' perception of the adverse effects of operating informally on a five-point Likert scale anchored at "not affected at all" and "severely affected".

At the firm level, we control for *Age of firm*, log number of years of operation by the business; *firm size*, log of the total number of employees in the preceding month; *industry which* was coded, 1, if the firm's main product was in the service sector, 2, if the firm's main product was in the manufacturing sector and, 3, if the firm's main product was in the wholesale and retail sector. The wholesale and retail sectors were separated from the service sector because they represent a dominant sector of the informal economy that is also usually dominated by female owners/managers. *Covid effect* measured the perceived impact of the Covid-19 pandemic on the business measured on a five-point Likert scale anchored at "very negatively" and "very positively". *NATUG involvement* measured the level to which the firm (owner or employees) were active in the National Artisans and Traders Union of Ghana (NATUG) by being a member, regularly attending meetings, and regularly paying dues to NATUG. Leaders of the cluster formed NATUG as an umbrella body of the members of the cluster to negotiate with the government against eviction from the land that they are occupying illegally. NATUG encourages its members to register their business names and for taxes to give the organization a stronger bargaining position. Hence we expect that the level of involvement in NATUG can affect willingness to adopt high levels of formalization. Finally, *Cluster dependence* measured the level to which the firm depends on members Cable and Wireless cluster as customers and as a source of recommendation to customers (through word of mouth). It is expected that firms with high dependence on the cluster for customers will have a higher perception of the role of legitimacy before local informal institutions as captured in the vignettes for study 2 and 3 and may systematically show differences in willingness to formalize at various levels based on aspiration achievement discrepancies.

[6] To ensure that respondents had the same idea about the benefits of operating formally, the following statement was added to each scenario: "It is believed by business experts that registering the business with the Registrar General and paying taxes to the Ghana Revenue Authority (GRA) puts businesses in a better position to win big contracts from big companies and make it easier to get loans from Banks. They, therefore, believe that registering your businesses and paying taxes has the potential to increase the performance of your business".

3.3 ANALYSES

The Level of formalization (our DV) had three categories, hence, we estimated multinomial logit regression models for each of the three studies. We run multinomial logistic regressions with individual and firm-level fixed effects control for unobserved heterogeneity at the individual and firm levels. However, we run an alternative multinomial logistic regression with standard errors clustered at the individual level for each study. These alternative regressions allow us to provide models that include regression estimates of the control variables for comparison. Further, because the STATA 17 package used in this study conducts a conditional fixed-effects analysis, it excludes all respondents that do not show any variation in willingness to formalize at each level of formalization across the three manipulations. However, the alternative models (without fixed effects) use the "full sample" for each study.

Study 1 Results

Study 1 tests hypotheses 1a and 1b; we explore the independent effect of financial performance relative to aspiration on informal firms' decision to formalize. Study 1 consisted of a sample 596 responses from 221 owner/managers of informal firms (Mage = 39.78, SDage = 9.40; 9.06% female). Average industry experience 11.30 (SD= 8.20) managing firms of average size 2.58 (SD=2.37, max= 27). Figure 3.1 shows how responses were distributed across each level of formalization. The figure indicates that the positive responses of owners/managers of firms with performance below aspiration dominate the low (90.00%) and medium (44.62%) formalization categories, while responses by managers with firm performance above and equal to aspiration show fairly equal dominance in the high formalization category. Results from the pairwise correlation table (Table 3.1) show that willingness to formalize at low levels is not significantly correlated with any of the control variables. However, willingness to formalize at the medium level is negatively correlated to the age of the owner or manager, the level to which the owner or manager believes that business owners have a legal responsibility to obey rules and regulations of the state, firm age, the size of the firm and the level to which the firm is involved in the activities of NATUG (the local association of the members of the cluster). However, formalization at the medium level is positively correlated with the level to which the firm depends on the cluster for customers. Willingness to formalize at a high level is significantly and positively correlated to the age of the owner or manager, the level to which the owner or manager believes that business owners have a legal responsibility to obey rules and regulations of the state, firm age, the size of the firm and the level to which the firm is

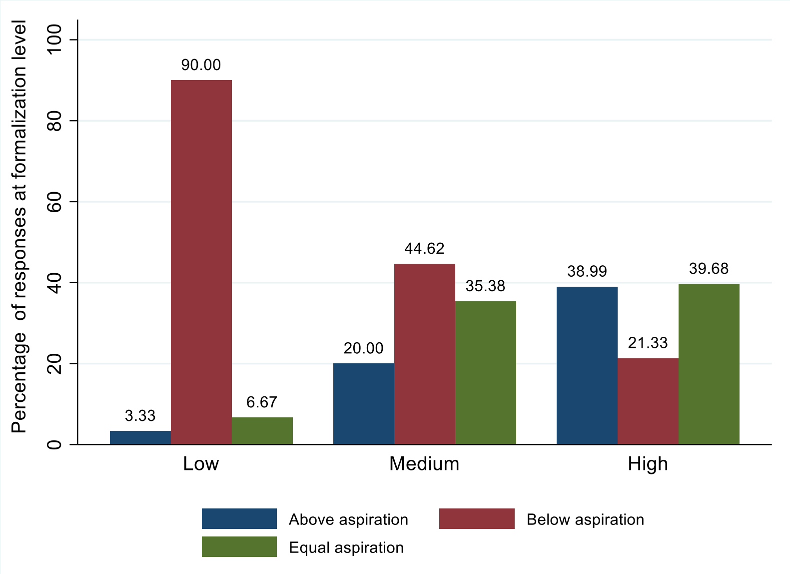

Figure 3.2: Distribution of owners/managers willingness to formalize at each level based on financial performance relative to aspiration level

involved in the activities of NATUG and the level to which the firm depends on the cluster for customers.

Results from the multinomial fixed-effects logit regression (Table 3.2) indicates that compared to a high level of formalization, owners/managers experiencing firm performance below aspiration are more likely to belong to the low (model 1: b = 4.98, $p < 0.00$) or medium (model 2: b = 2.12, $p < 0.00$) formalization categories relative to owners/managers experiencing firm performance equal to aspiration level. Model 3 of Table 3.2 indicates that compared to a high level of formalization, owners/managers experiencing firm performance below aspiration are 145. 51 ($p < 0.00$) times at higher risk of willingness to formalize at a low level of formalization while model 4 indicates that they are 8.36 ($p < 0.00$) times at higher risk of willingness to formalize at a medium level formalization relative to owners/managers experiencing firm performance equal to aspiration level. Hence financial performance below aspiration level has a significant negative association with willingness to formalize at a high level, supporting hypothesis 1a. Table 3.2 also indicates that compared to a high level of formalization, owners/managers experiencing firm performance above aspiration level have an equal likelihood to belong to the low formalization category (model 1: b = -1.20, p = 0.35) relative to owners/managers experiencing firm performance equal to aspiration level. However, owners/managers experiencing firm performance above aspiration level have less likelihood to belong to the medium formalization level category (model 2: b = -1.02, p = 0.016) relative to owners/managers experiencing firm performance equal to aspiration level. Hence they are more likely to be willing to formalize at a high level. Model 4 of Table 3.2 indicates that compared to a high level of formalization, the relative risk of owners/managers experiencing firm performance above aspiration being willing to formalize at the medium formalization level decreases by a factor of 0.36 ($p < 0.00$) compared to owners/managers experiencing firm performance equal to aspiration level. Hence financial performance above aspiration increases the risk of willingness to formalize at a high level. These results show support for hypothesis 1b. Because our main models employed individual and firm fixed effects, we did not include the individual-level and firm-level covariates in these models.

We, run an additional multinomial logistic regression model with standard errors clustered at the individual level (Table 3.2). This model includes 520 observations from 200 owners and managers compared to 214 responses from 77 owners/managers used in the fixed-effects model. The results remain qualitatively similar across the alternative models. We also calculated the marginal effects based on results from the multinomial logit with clustered standard errors (Appendix A, Table 3.2 A). Figure 3.1A, Appendix A, presents the predicted probabilities graphically. Owners/managers of firms experiencing financial performance below aspirations had the highest average predicted probability for belonging to the low formalization category (0.15 $p < 0.00$) and the medium formalization category (0.32, $p < 0.00$). They, however, have the lowest (0.52 $p < 0.00$) average probability to belong to high formalization category compared owners/managers of firms experiencing financial performance equal to (0.79, $p < 0.00$) and above aspirations level (0.87, $p < 0.00$). We replicate the main analysis using the types of formalization, business name, national tax, and municipal tax registration as alternative dependent variables to the levels of formalization (Appendix A, Table 3.3A). Given that each type of formalization was measured as a dummy variable, we ran a separate logit model for each type of formalization. We found that the hypothesized relationship remained consistent for willingness to register the business name. However, for national and municipal tax registration, even though owners/managers are more willing to formalize when performance is above aspiration level than performance below aspiration level, their willingness to formalize is not significantly different from that of performance equal to aspiration.

Table 3.1: Correlation among variables in study 1

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Low formalization	1.00												
(2) Medium formalization	-0.12*	1.00											
(3) High formalization	-0.38*	-0.87*	1.00										
(4) Age	-0.05	-0.10*	0.12*	1.00									
(5) Gender	0.01	0.00	-0.01	-0.13*	1.00								
(6) Industry experience	-0.02	-0.05	0.06	0.46*	-0.34*	1.00							
(7) Legal responsibility	-0.05	-0.13*	0.14*	0.08*	-0.13*	0.09*	1.00						
(8) Firm age	-0.04	-0.12*	0.13*	0.54*	-0.31*	0.66*	-0.04	1.00					
(9) Cost of informality	-0.04	-0.01	0.02	0.14*	-0.10*	0.06	0.13*	0.08	1.00				
(10) Firm size	-0.02	-0.12*	0.12*	0.10*	-0.19*	0.04	0.26*	0.09*	0.11*	1.00			
(11) NATUG involvement	0.01	-0.13*	0.12*	0.24*	-0.26*	0.24*	0.15*	0.34*	0.04	0.30*	1.00		
(12) Cluster dependence	0.03	0.12*	-0.13*	-0.01	0.37*	-0.30*	-0.14*	-0.19*	0.11*	-0.30*	-0.25*	1.00	
(13) Covid effect	0.01	-0.06	0.05	0.15*	-0.17*	0.16*	0.10*	0.21*	-0.04	0.28*	0.17*	-0.21*	1.00

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 3.2: Results of Multinomial Logistic Regression with Fixed-effects

VARIABLES	(Mode1 1) Low vs. High	(Model 2) Meduim vs. High	(Model 3) Low vs. High (RRR)	(Model 4) Meduim vs. High (RRR)
Financial performance				
Above aspiration	-1.198	-1.017**	0.302	0.362**
	(1.277)	(0.423)	(0.385)	(0.153)
Below aspiration	4.980***	2.124***	145.5***	8.361***
	(1.188)	(0.494)	(172.8)	(4.126)
Observations	214	214	214	214
Number of individuals	77	77	77	77
Individual-level fixed effects	YES	YES	YES	YES
Firm-level fixed effects	YES	YES	YES	YES

Table 3.3: Results of Multinomial Logistic Regression with Clustered Standard Errors

VARIABLES	(Model 1) Low vs. High	(Model 2) Medium vs. High	(Model 3) Low vs. High	(Model 4) Medium vs. High	(Model 5) Low vs. High (RRR)	(Model 6) Medium vs. High (RRR)
Age	-0.0397	-0.0303	-0.0737	-0.0351	0.929	0.965
	(0.0357)	(0.0214)	(0.0466)	(0.0237)	(0.0433)	(0.0229)
Gender	2.148*	0.0180	2.432	-0.0763	11.38	0.927
	(1.218)	(0.724)	(1.856)	(0.853)	(21.13)	(0.790)
Industry experience	0.546	0.442**	0.956**	0.472**	2.601**	1.604**
	(0.354)	(0.206)	(0.399)	(0.228)	(1.038)	(0.365)
Legal responsibility	-0.547*	-0.627***	-0.913**	-0.675***	0.401**	0.509***
	(0.306)	(0.199)	(0.433)	(0.217)	(0.174)	(0.110)
Firm age	-0.749*	-0.501*	-1.171**	-0.597**	0.310**	0.550**
	(0.413)	(0.263)	(0.488)	(0.297)	(0.151)	(0.164)
Firm size	0.492*	0.150	0.927**	0.199	2.527**	1.220
	(0.298)	(0.220)	(0.422)	(0.242)	(1.067)	(0.295)
Covid effect	0.777*	- 0.246	1.216**	- 0.203	0.296**	1.225
	(0.411)	(0.224)	(0.522)	(0.247)	(0.155)	(0.303)
Cost of informality	-0.0610	0.0459	-0.286	0.0269	0.751	1.027
	(0.173)	(0.105)	(0.234)	(0.113)	(0.176)	(0.116)
Cluster dependence	0.219	0.288**	0.359	0.332**	1.431	1.394**
	(0.245)	(0.132)	(0.324)	(0.146)	(0.464)	(0.204)
NATUG involvement	0.398*	0.000406	0.535*	0.00149	1.708*	1.001
	(0.207)	(0.116)	(0.287)	(0.126)	(0.490)	(0.127)
Financial Performance						
Above aspiration			-0.971	-0.641**	0.379	0.527**
			(1.012)	(0.257)	(0.383)	(0.135)
Below aspiration			4.394***	1.163***	80.97***	3.199***
			(1.213)	(0.257)	(98.25)	(0.821)
Constant	-12.00***	2.133	-10.92***	2.391	1.80e-05***	10.93
	(1.724)	(1.662)	(2.934)	(1.819)	(5.29e-05)	(19.88)

Observations	520	520	520	520	520	520
Level of education Dummy	YES	YES	YES	YES	YES	YES
Industry Dummy	YES	YES	YES	YES	YES	YES
Firm registeration Dummy	YES	YES	YES	YES	YES	YES
Sales Dummy	YES	YES	YES	YES	YES	YES
Zone Dummy	YES	YES	YES	YES	YES	YES
Vignette Set Dummy	YES	YES	YES	YES	YES	YES
Pseudo R2	0.152	0.152	0.273	0.273	0.273	0.273

Study 2 results

In study 2, we explore the independent effect of informal legitimacy relative to aspiration on informal firms' decision to formalize; hypotheses 2a and 2b. Study 2 consisted of a sample 576 responses from 199 owner/managers of informal firms (Mage = 38.65, SDage = 9.10; 26.04% female). Figure 3.2 shows how responses were distributed at across each level of formalization. Figure 3.2 shows that the responses of owners/managers of firms with performance below aspiration dominate the low and medium formalization categories, while responses by managers with firm performance above and equal to aspiration show fairly equal dominance in the high formalization category. Interestingly, responses by managers of firms with performance equal to aspiration level also show a similar preference for low level of formalization but a clear lower preference for a medium level of formalization relative to managers of firms with performance below to aspiration level.

Results from the pairwise correlation table (Table 3.3) show that willingness to formalize at low levels is negatively correlated with the perceived cost of operating informally and active involvement in NATUG . Willingness to formalize at a medium level is negatively correlated to the firm's size and the perceived cost of informality. However, formalization at the medium level is positively correlated with being a female owner/manager and the level to which the firm depends on the cluster for customers. Willingness to formalize at a high level is negatively correlated to being female and the level to which the firm depends on the cluster for customers. It is, however, positively correlated to the firm's size, the perceived cost of informality, and the level to which the firm is involved in the activities of NATUG.

Results from the multinomial logit regression (Table 3.4) indicates that compared to a high level of formalization, owners/managers experiencing legitimacy below aspiration are more likely to belong to the low (model 1: b = 1.35, p =0.045) or medium (model 2: b = 1.35, p < 0.00) formalization categories relative to owners/managers experiencing legitimacy equal to aspiration level. Table 3.4 also indicates that compared to a high level of formalization, owners/managers experiencing legitimacy below aspiration are 3. 87 (model 3, $p < 0.00$) times at higher risk of willingness to formalize at a low level of formalization and 3.86 (model 4, $p < 0.00$) times at higher risk of willingness to formalize at a medium level formalization relative to owners/managers experiencing legitimacy equal to aspiration level. Futher, Table 3.4 indicates that compared to a high level of formalization, owners/managers experiencing legitimacy above aspiration level have an equal likelihood to belong to both the low (model 1: b = -.42, p = 0.56) and medium (model 2: b = 0.10, p = 0.759) formalization category relative to owners/managers experiencing legitimacy equal to aspiration level.

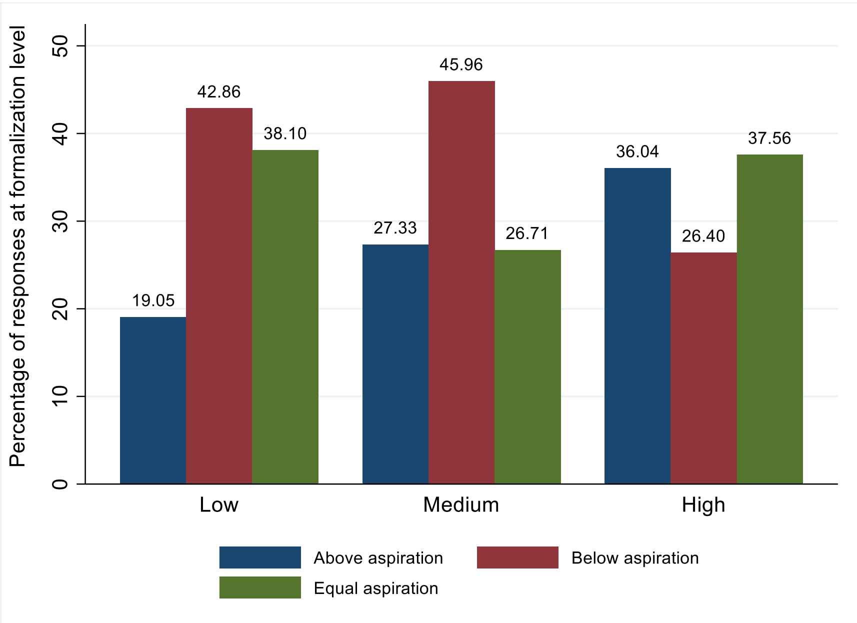

Figure 3.3: Distribution of owners/managers willingness to formalize at each level based on legitimacy relative to aspiration level

Hence, even though owners/managers of firms with legitimacy above aspiration level are more likely to formalize at a high level compared to owners/managers of firms with legitimacy below aspiration level, they are not more likely to do so compared to owners/managers of firms with legitimacy equal to aspiration level. Hence the results support hypothesis 2a but provide at best partial support for hypothesis 2b.

We run an additional multinomial logistic regression model (Table 3.5) with standard errors clustered at the individual level. This model includes 535 observations from 197 owners and managers compared to 239 responses from 83 owners/managers used in the fixed-effects model. The results remain qualitatively similar across the alternative models. However, the results from the multinomial logit regression (Table 3.5, model 3) also indicates that compared to a high level of formalization, there was no significant difference between owners/managers experiencing both legitimacy below and above aspiration level in their likelihood to formalize at the low level relative to owners/managers experiencing legitimacy equal to aspiration level. We also calculated the average predicted probabilities of belonging to each level of formalization based on results from the multinomial logit with clustered standard errors (Appendix B, Table 3.2B). Figure 3.1B, Appendix A, presents the predicted probabilities graphically. Owners/managers of firms experiencing legitimacy below aspirations had the highest average predicted probability for belonging to the low formalization category (0.05, $p < 0.00$) and the medium formalization category (0.39, $p < 0.00$). They, however, have the lowest (0.56, $p < 0.00$) average probability to belong to high formalization category compared owners/managers of firms experiencing financial performance equal to (0.75, $p < 0.00$) and above aspirations level (0.75, $p < 0.00$). Owners/managers of firms experiencing financial performance equal to and above aspiration level had similar average predicted probabilities of belonging to the high formalization level category. However, owners/managers of firms performing above aspiration also had a marginally higher predicted probability of belonging to the medium formalization category.

We replicated the fixed-effect analysis using the types of formalization, business name, national tax, and municipal tax registration as alternative dependent variables rather than the levels of formalization (Appendix B, Table 3.2B). We ran a separate logit model for each type of formalization. We found that for all the three types of formalization studied, even though owners/managers are more willing to formalize when legitimacy is above aspiration level than legitimacy below aspiration level, their willingness to formalize is not significantly different from that of legitimacy equal to aspiration level. Hence the findings of the main model remain robust, and hypothesis 2b is at best partially supported.

Table 3.3: Correlation among Variables in Study 2

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Low formalization	1.00												
(2) Medium formalization	-0.12*	1.00											
(3) High formalization	-0.29*	-0.92*	1.00										
(4) Age	0.03	-0.07	0.05	1.00									
(5) Gender	0.07	0.09*	-0.12*	-0.27*	1.00								
(6) Industry experience	-0.02	-0.03	0.04	0.66*	-0.53*	1.00							
(7) Legal responsibility	0.05	-0.04	0.02	0.28*	-0.14*	0.21*	1.00						
(8) Firm age	-0.04	-0.06	0.07	0.57*	-0.57*	0.84*	0.22*	1.00					
(9) Cost of informality	-0.21*	-0.12*	0.20*	-0.02	-0.05	0.08	-0.18*	0.01	1.00				
(10) Firm size	-0.02	-0.08*	0.09*	0.14*	-0.34*	0.33*	0.22*	0.34*	-0.04	1.00			
(11) NATUG involvement	-0.12*	-0.07	0.11*	0.31*	-0.36*	0.34*	0.13*	0.38*	0.09*	0.34*	1.00		
(12) Cluster dependence	0.04	0.09*	-0.10*	-0.18*	0.51*	-0.42*	-0.11*	-0.46*	0.07	-0.29*	-0.29*	1.00	
(13) Covid effect	-0.01	-0.02	0.03	0.13*	-0.13*	0.21*	0.14*	0.11*	0.12*	0.11*	0.14*	-0.30*	1.00

**** $p<0.01$, ** $p<0.05$, * $p<0.1$*

Table 3.4 Results of Multinomial Logistic Regression with Fixed Effects

VARIABLES	(Mode1 1) Low vs. High	(Model 2) Meduim vs. High	(Model 3) Low vs. High (RRR)	(Model 4) Meduim vs. High (RRR)
Legitimacy				
Above Aspiration	-0.417	0.101	0.659	1.106
	(0.711)	(0.330)	(0.469)	(0.365)
Below Aspiration	1.352**	1.351***	3.866**	3.863***
	(0.674)	(0.318)	(2.605)	(1.227)
Observations	239	239	239	239
Number of individuals	83	83	83	83
Individual-level fixed effects	YES	YES	YES	YES
Firm-level fixed effects	YES	YES	YES	YES

Table 3.5: Results of Multinomial Logistic Regression with Clustered Standard Errors

VARIABLES	(Model 1) Low vs. High	(Model 2) Medium vs. High	(Model 3) Low vs. High	(Model 4) Medium vs. High	(Model 5) Low vs. High (RRR)	(Model 6) Medium vs. High (RRR)
Age	0.0226	-0.0430**	0.0305	-0.0228	1.031	0.977
	(0.0622)	(0.0195)	(0.0515)	(0.0188)	(0.0531)	(0.0184)
Gender	0.492	0.00706	0.387	-0.171	1.472	0.843
	(0.905)	(0.410)	(0.809)	(0.417)	(1.190)	(0.352)
Industry experience	0.409	0.640*				
	(0.753)	(0.331)				
Legal responsibility	-0.463	-0.0660	-0.471	-0.133	0.625	0.875
	(0.542)	(0.210)	(0.555)	(0.216)	(0.347)	(0.189)
Firm Age	-0.119	-0.167	0.185	0.189	1.203	1.208
	(0.497)	(0.294)	(0.506)	(0.203)	(0.608)	(0.245)
Firm size	-0.157	-0.262	-0.159	-0.184	0.853	0.832
	(0.472)	(0.240)	(0.387)	(0.253)	(0.330)	(0.210)
Covid effect	0.466	0.411	0.470	0.462	1.600	1.587
	(0.542)	(0.293)	(0.495)	(0.301)	(0.791)	(0.478)
Cost of informality	-1.138***	-0.394***	-1.154***	-0.394***	0.315***	0.675***
	(0.316)	(0.125)	(0.308)	(0.127)	(0.0971)	(0.0856)
Cluster dependence	0.202	0.307**	0.232	0.319**	1.262	1.376**
	(0.213)	(0.126)	(0.220)	(0.133)	(0.278)	(0.183)
NATUG involvement	-0.319**	0.0334	-0.300**	0.0324	0.741**	1.033
	(0.126)	(0.0751)	(0.134)	(0.0764)	(0.0991)	(0.0790)
Legitimacy						
Above aspiration			-0.462	0.0525	0.630	1.054
			(0.689)	(0.226)	(0.434)	(0.238)
Below aspiration			0.910	0.995***	2.484	2.705***
			(0.568)	(0.228)	(1.410)	(0.616)
Constant	-27.96***	0.466	-28.88***	0.173	0***	1.189
	(3.593)	(1.950)	(3.909)	(2.036)	(0)	(2.422)

Observations	535	535	535	535	535	535
Level of education Dummy	YES	YES	YES	YES	YES	YES
Industry Dummy	YES	YES	YES	YES	YES	YES
Firm registration Dummy	YES	YES	YES	YES	YES	YES
Sales Dummy	YES	YES	YES	YES	YES	YES
Zone Dummy	YES	YES	YES	YES	YES	YES
Vignette Set Dummy	YES	YES	YES	YES	YES	YES
Pseudo R2	0.166	0.166	0.186	0.186	0.186	0.186

Study 3 results

Study 3 explores the combined effect of financial performance and legitimacy relative to aspiration level on informal firms' formalizing decisions. Study 3 consisted of a sample 841 observations from 223 owner/managers of informal firms (Mage =37.39, SDage = 9.31; 30% female). Average industry experience 10.39 (SD=8.50) managing firms of average size 2.39 (SD=2.28, max= 21). Figure 3.3 shows that the responses of owners/managers of firms with Low legitimacy X Low performance and High legitimacy X Low performance dominate the low and medium formalization categories. They account for 48.5% and 30.3% of responses in the low formalization level and 40.3% and 29.3% of the medium formalization level, respectively. Responses by owners/managers of firms with Low legitimacy X High performance and High legitimacy X High performance show fairly equal dominance in the high formalization category, with responses from High legitimacy X High performance showing a slight edge.

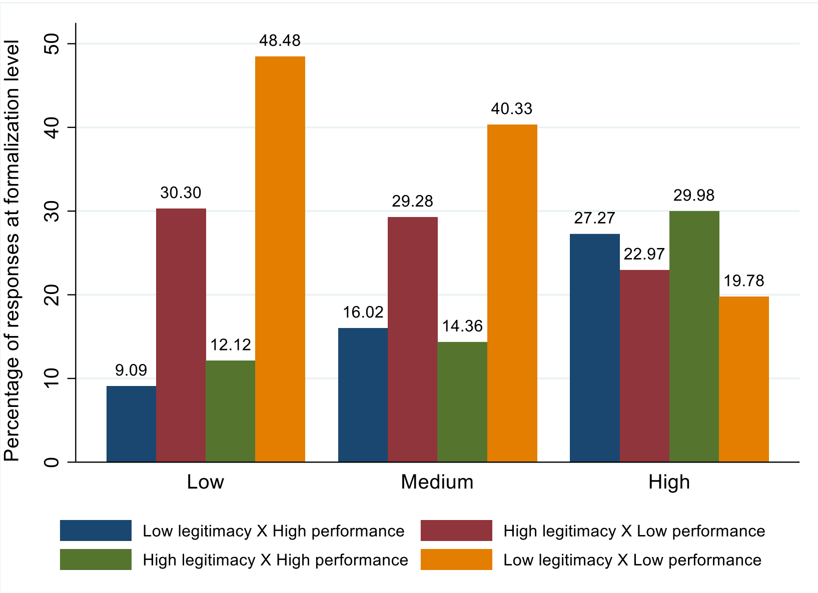

Figure 3.4: Distribution of owners/managers willingness to formalize at each level based on the interaction between legitimacy and performance relative to aspiration level

Results from the pairwise correlation table (Table 3.6) show that willingness to formalize at low levels is negatively correlated with owner/manager's age, industry experience, perception of obeying the rules and regulations of the state, the perceived cost of operating informally, the firm's age and level of involvement in NATUG. Willingness to formalize at a medium level is negatively correlated to the perception of obeying the rules and regulations of the state, the perceived cost of operating, the level to which the firm depends on the cluster for customers, and the negative effect of the Covid-19 pandemic on the business. Willingness to formalize at a high level is negatively correlated to the firm's dependence on the cluster for customers. It is, however, positively correlated to the owner/manager's industry experience, perception of obeying the rules and regulations of the state, the perceived cost of operating informally, the firm's age, level of involvement in NATUG, and the negative impact of Covid-19 pandemic on the firm.

Results from the fixed effect multinomial logit regression (Table 3.7) indicates that compared to a high level of formalization, owners/managers experiencing Low legitimacy X Low performance are more likely to belong to the low (model 1: $b = 2.27$, $p = 0.001$) or medium (model 2: $b = 2.17$, $p < 0.00$) formalization categories relative to owners/managers experiencing High legitimacy X High performance. Model 3 of Table 3.7 indicates that compared to a high level of formalization, owners/managers experiencing Low legitimacy X Low performance are 9. 66 ($p < 0.001$) times at higher risk of willingness to formalize at a low level of formalization, and model 4 indicates that they are 8.73 ($p < 0.00$) times at higher risk of willingness to formalize at a medium level formalization relative to owners/managers experiencing High legitimacy X High performance. Table 3.7 also indicates that compared to a high level of formalization, owners/managers experiencing Low legitimacy X High performance have an equal likelihood to belong to the low (model 1: $b = -1.42$, $p = 0.131$) and medium (model 2: $b = -.13$, $p = 0.794$) formalization category relative to owners/managers experiencing High legitimacy X High performance. Hence, they less likely to belong to the low and medium level of formalization category compared to firms with Low legitimacy X Low Performance. Thus supporting Hypothesis 3a is supported. Further, Table 3.7 also indicates that compared to a high level of formalization, owners/managers experiencing High legitimacy X Low performance have an equal likelihood to belong to the low (model 1: $b = 1.83$, $p = 0.390$) formalization category relative to owners/managers experiencing High legitimacy X High performance. However, compared to a high level of formalization, owners/managers experiencing High legitimacy X Low performance have a higher likelihood to belong to the medium (model 2: $b = 1.25$, $p = 0.006$) formalization category relative to owners/managers experiencing High legitimacy X High performance. Model

3 of Table 7 indicates that compared to a high level of formalization, owners/managers experiencing High legitimacy X Low performance are 3.52 ($p = 0.006$) times at higher risk of willingness to formalize at a medium level of formalization relative to owners/managers experiencing High legitimacy X High performance. This relative risk ratio is, however, lower than the relative risk ratio of firms with Low legitimacy X Low performance.

Put together; the preceding results indicate that even though owners/managers whose firms are experiencing High legitimacy X Low performance situation have a similar likelihood to formalize at a high level relative to a low level when compared with firms with low legitimacy X High performance, owners/managers of firms with High legitimacy X Low performance are more likely to formalize at medium levels compared to owners/managers whose firms are experiencing Low legitimacy X High performance. Hence, contrary to hypothesis 3b, owners/managers of firms with Low legitimacy X High performance are more likely to formalize at a high level than firms in a High legitimacy X Low performance situation. The results also indicate that owners/managers of firms with High legitimacy X High performance are more likely to be willing to formalize at high levels than firms with High legitimacy X Low performance; thus, hypothesis 3c is supported. The results further show that the willingness to formalize at each level of formalization of owners/managers of firms facing Low legitimacy X High performance is not significantly different from that of managers facing High legitimacy X Low legitimacy.

The results from the multinomial logit with clustered standard errors (Table 3.8, model 3 and 4) are consistent with that of the fixed-effects model. We also calculated the marginal effects based on results from the multinomial logit with clustered standard errors (Appendix C, Table 3.3 C). Figure 3.5C, Appendix C, presents the predicted probabilities graphically. In terms of marginal effects, Owners and managers of firms experiencing Low legitimacy X Low performance have the highest average predicted probability (0.08, $p < 0.00$) of belonging to the low formalization level and the lowest average predicted probability of belonging to the high formalization level (0.60, $p < 0.00$). Owners and managers of firms experiencing Low legitimacy X High performance have the lowest average predicted probability (0.01, $p < 0.088$) of belonging to the low formalization level, followed by owners and managers of firms experiencing High legitimacy X High performance (0.03, $p < 0.00$). Owners and managers of firms experiencing High legitimacy X High performance had the highest average predicted probability of belonging to the (0.86, $p < 0.00$).

Table 3.6: Correlation among variables in Study 3

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Low formalization	1.00												
(2) Medium formalization	-0.11*	1.00											
(3) High formalization	-0.35*	-0.90*	1.00										
(4) Age	-0.07*	-0.03	0.06	1.00									
(5) Gender	0.01	0.06	-0.06	-0.07*	1.00								
(6) Industry experience	-0.09*	-0.03	0.07*	0.50*	-0.33*	1.00							
(7) Legal responsibility	-0.13*	-0.15*	0.20*	0.11*	-0.05	0.17*	1.00						
(8) Firm age	-0.12*	-0.04	0.09*	0.53*	-0.39*	0.92*	0.25*	1.00					
(9) Cost of informality	-0.12*	-0.10*	0.15*	0.01	-0.13*	0.18*	0.24*	0.15*	1.00				
(10) Firm size	-0.01	0.01	0.00	0.01	-0.36*	0.23*	0.12*	0.24*	0.15*	1.00			
(11) NATUG involvement	-0.08*	-0.06	0.09*	0.15*	-0.45*	0.41*	0.18*	0.44*	0.17*	0.45*	1.00		
(12) Cluster dependence	0.01	0.08*	-0.08*	-0.12*	0.59*	-0.30*	0.00	-0.32*	0.09*	-0.26*	-0.37*	1.00	
(13) Covid effect	0.01	-0.13*	0.12*	0.02	-0.26*	0.14*	0.11*	0.07*	0.23*	0.09*	0.18*	-0.19*	1.00

**** p<0.01, ** p<0.05, * p<0.1*

Table 3.7: Multinomial Logistic Regression with Fixed effects

VARIABLES	(Model 1) Low vs. High	(Model 2) Medium vs. High	(Model 3) Low vs. High (RRR)	(Model 4) Medium vs. High (RRR)
Legitimacy X Performance				
Low legitimacy X High performance	-1.424	-0.126	0.241	0.881
	(0.942)	(0.484)	(0.227)	(0.426)
High legitimacy X Low performance	0.603	1.259***	1.828	3.521***
	(0.701)	(0.455)	(1.281)	(1.602)
Low legitimacy X Low performance	2.268***	2.167***	9.663***	8.731***
	(0.693)	(0.463)	(6.695)	(4.046)
Observations	307	307	307	307
Number of individuals	88	88	88	88
Individual-level fixed effects	YES	YES	YES	YES
Firm-level fixed effects	YES	YES	YES	YES

Table 3.8: Multinomial Logistic Regression with Clustered Standard Errors

VARIABLES	(Model 1) Low vs. High	(Model 2) Medium vs. High	(Model 3) Low vs. High	(Model 4) Medium vs. High	(Model 5) Low vs. High (RRR)	(Model 6) Medium vs. High (RRR)
Age	-0.0807*	-0.0166	-0.0856*	-0.0158	0.918*	0.984
	(0.0442)	(0.0200)	(0.0463)	(0.0224)	(0.0425)	(0.0220)
Gender	1.546	-0.332	1.571	-0.317	4.810	0.728
	(1.218)	(0.470)	(1.286)	(0.507)	(6.186)	(0.369)
Industry experience	1.206*	-0.0546	1.276*	-0.0347	3.582*	0.966
	(0.676)	(0.361)	(0.711)	(0.380)	(2.548)	(0.367)
Legal responsibility	-0.890***	-0.866***	-1.029***	-0.958***	0.357***	0.384***
	(0.320)	(0.253)	(0.338)	(0.272)	(0.121)	(0.104)
Firm age	-1.119	0.363	-1.194	0.342	0.303	1.408
	(0.832)	(0.355)	(0.861)	(0.368)	(0.261)	(0.518)
Firm size	0.310	0.00549	0.350	0.00882	1.419	1.009
	(0.488)	(0.213)	(0.514)	(0.223)	(0.729)	(0.225)
Covid effect	-0.310	0.300	-0.293	0.327	0.746	1.387
	(0.602)	(0.187)	(0.635)	(0.200)	(0.474)	(0.277)
Cost of informality	-0.218	-0.136	-0.273	-0.176	0.761	0.838
	(0.270)	(0.111)	(0.282)	(0.120)	(0.214)	(0.101)
Cluster dependence	-0.0744	0.245*	-0.0573	0.249*	0.944	1.283*
	(0.250)	(0.138)	(0.270)	(0.147)	(0.255)	(0.189)
NATUG involvement	-0.174	-0.0987	-0.185	-0.105	0.831	0.901
	(0.127)	(0.0727)	(0.135)	(0.0783)	(0.112)	(0.0705)
Legitimacy X Performance						
Low legitimacy X High performance			-1.080	0.229	0.340	1.258
			(0.900)	(0.273)	(0.305)	(0.344)
High legitimacy X Low performance			0.782	1.131***	2.185	3.100***

			(0.688)	(0.313)	(1.503)	(0.969)
Low legitimacy X Low performance			1.839***	1.609***	6.288***	4.998***
			(0.613)	(0.294)	(3.856)	(1.468)
Constant	3.243	2.351	3.165	1.831	23.69	6.238
	(4.529)	(1.631)	(4.693)	(1.739)	(111.2)	(10.85)
Observations	711	711	711	711	711	711
Level of education Dummy	YES	YES	YES	YES	YES	YES
Industry Dummy	YES	YES	YES	YES	YES	YES
Firm registeration Dummy	YES	YES	YES	YES	YES	YES
Sales Dummy	YES	YES	YES	YES	YES	YES
Zone Dummy	YES	YES	YES	YES	YES	YES
Vignette Set Dummy	YES	YES	YES	YES	YES	YES
Pseudo R2	0.147	0.147	0.203	0.203	0.203	0.203

We replicate the main analysis using the types of formalization, business name, national tax, and municipal tax registration as dependent variables rather than the levels of formalization. We run a separate logit model for each type of formalization. We found that the relationship remained consistent across all three dependent variables. Owners/managers of firms experiencing Low legitimacy X Low performance showed the least willingness to adopt each type of formalization. This was followed by Owners/managers of firms experiencing High legitimacy X Low performance. There was no significant difference between the willingness of Owners/managers of firms experiencing Low legitimacy X High performance and that of Owners/managers of firms experiencing High legitimacy X High performance across the three types of formalization.

3.4 DISCUSSION AND CONCLUSION

The purpose of this paper is to understand how multiple aspirations both independently and jointly influence informal firms' formalization decisions in response to survival threats from economic disruption. We draw on the BTOF and the institutional literature to propose that financial performance and legitimacy aspirations act both independently and jointly influence informal firms' decisions to formalize

Firstly, we find that in times of economic disruption, informal firms are more willing to adopt higher levels of formalization when sales performance is above aspiration but less willing to do so when sales performance is below aspiration. These findings are contrary to the baseline predictions of BTOF (Cyert & March, 1963) but consistent with the expectation that firms are more risk-averse when they are focused on survival rather than improved performance (March &

Shapira, 1987). The findings support the argument that the survival threat of widespread economic disruptions and the increased inability of managers to estimate the consequences of formalization in such uncertain environments leads owners/managers of underperforming firms to shift attention from performance improvement to protecting the firm from further danger (March & Shapira, 1987, 1992). On the other hand, managers of informal firms that experience performance above aspiration level in times of disruption may see it as an indication that their firms have a valuable resource that is a good fit with the current environment (Ref & Shapira, 2017). Therefore, they may see the good match between their resources and the current environment as a source of opportunity to take actions or adopt strategies that go beyond immediate firm survival to support long-term success (Namatovu & Larsen, 2021) even beyond the economic disruption. This assertion is supported by recent findings (Williams et al., 2017; Witte & Larsen, 2019), which indicate that firms may operate in the informal economy to focus their limited resources on experimenting or overcoming alternative liabilities of newness present in developing countries. Hence, informal firms performing above aspiration level may consider it a signal of a good fit with the external environment and shift attention from experimenting or overcoming alternative liabilities of newness to securing the firm's long-term growth in the formal economy. Given the uncertain nature of the formalization decision, we expect such a shift in managerial focus to be more likely when performance above aspiration leads to slack in the presence of widespread economic disruption.

Further analyses using types of formalization rather than the level of formalization as a dependent variable indicate that the willingness to formalize as a result of performance above aspiration was present for registering of a business name but absent for registering for both national and municipal taxes. Registering a business name in Ghana is a one-time act that requires yearly renewal at a minimal fee relative to the potential cost of national and municipal taxes. Even though municipal taxes should be relatively minimal compared to national taxes, municipal taxes are more effectively enforced in the Ghanaian context due to the proximity of municipal offices and abundance of municipal inspection officers. Additionally, regular payment of taxes inevitably increases the operational costs of a firm. Therefore, business name registration may represent a “low commitment” form of formalization that still gives informal firms access to some benefits of formalization while reducing the risk of unsuccessful formalization. Hence the increased likelihood of overperforming firms adopting business name registration compared to other “higher commitment” forms of formalization, especially in the face of the uncertainty that comes with widespread economic disruption.

Second, the findings from study 2 indicate, in times of economic disruption, informal firms are more willing to adopt higher formalization levels when they perceive that their legitimacy in the sight of stakeholders of informal institutions is above aspiration but less willing to do so when legitimacy is below aspiration. However, the risk-seeking propensities of firms with legitimacy above aspiration are not significantly different from that of firms with legitimacy equal to aspirations level. Hence, contrary to initial expectations, in times of economic disruption, informal firms are not independently triggered by perceived legitimacy above aspiration to formalize with the expectation of acquiring additional legitimacy from stakeholders of formal institutions. They are, however, triggered by the survival threat of legitimacy below aspiration to adopt lower levels of formalization.

This finding is in line with the sequential attention to aspirations tenet of BTOF that argues that firms order and attend to aspirations according to priority and that aspirations closely related to survival take high priority (Greve, 2008). Given that legitimacy in the sight of stakeholders of informal institutions has implications for the survival of the firm under conditions of high dependence on informal legitimacy, we find that when perceived legitimacy is below aspiration level, informal firms are more willing to sacrifice the broader market and performance benefits of formalization for the survival benefits of aligning to with informal institutional arrangements. This result is magnified by the uncertainty effect of widespread economic disruptions.

Finally, we find that owners/managers of informal firms showed a differential preference for the different levels of formalization based on the interaction between legitimacy and financial performance relative to aspiration. In line with expectations, we find that owners/managers of informal firms showed the least wiliness to adopt higher levels of formalization when they experienced legitimacy and financial performance below aspiration. They, however, showed the highest willingness to adopt higher levels of formalization when they were experiencing legitimacy and financial performance above aspiration level. Contrary to expectations, their willingness to adopt higher levels of formalization when they are experiencing legitimacy and financial performance above aspiration level was equaled by their willingness under the legitimacy below and performance above aspiration treatment. This may be an indication that informal firms that find that they can have superior performance even with low legitimacy before stakeholders of informal institutions may become more emboldened to ignore such stakeholders. Therefore, they will become more willing to pursue the prospect of broader market, customer, and resource access that formalization may offer at the expense of gaining legitimacy before stakeholders of informal institutions. Such conditions may exist if stakeholders delay or altogether do not penalize informal firms in ways that affect the firms' performance or survival. In other words, firms that find that they can survive outside their dependence on informal institutional stakeholders will be more willing to formalize at higher levels of formalization.

Further, the high willingness to formalize under the legitimacy below and financial performance above aspiration condition may indicate potential "rapid formalization" on the part of owners/managers of such firms in anticipation of sanctions by stakeholders of informal institutions. Formalizing at high levels should increase a firm's legitimacy before formal institutions. Thus, to avoid the possible survival implications of the loss of legitimacy before informal institutions, firms with low legitimacy but high performance may quickly formalize at high levels to reduce or eliminate their dependence on informal institutional arrangements for survival. This phenomenon also reflects the use of possible slack resources from overperformance to secure long-term survival even after the economic disruption.

Theoretical implications

In sum, we suggest that informal firms' decision to formalize goes beyond the payment of a registration fee and taxes and involves movements between two conflicting logics of market exchange. The formalization decision is thus uncertain and is taken relative to sufficing conditions rather than based on quasi-rational cost-benefit optimizations owing to bounded rationality. We also argue that the uncertainty associated with the formalization decision is increased further in times of sudden and widespread economic disruption. Specifically, we argue that financial performance and perceived legitimacy relative to aspiration level affect informal firms' level of formalization both independently and by interacting with each other. By empirically exploring these effects, the study introduces novel antecedents and mechanisms to our understanding of informal firms' decisions to formalize. Previous studies have investigated the performance and legitimacy improvement implications of formalization (e.g., Assenova & Sorenson, 2017; Ulyssea, 2018; Xheneti, Madden, & Thapa Karki, 2019), this study, however, represents initial steps in empirically estimating the effects of performance and legitimacy relative to aspiration level on the decision to formalize.

Furthermore, the study extends BTOF to informal firms. Even though part of BTOF addresses organizations in general (Rousseau et al., 2020), previous research has focused on firms that align to formal institutional prescriptions. In doing so, we contribute to building a theory of informal firm formalization by challenging two implicit but important assumptions in the existing literature, namely; (1) that the decision to formalize is the result of rational or quasi-rational optimizations; and (2) that firm performance (e.g., profit, employee number, etc.) is the singular firm aspiration that influences informal firms' decision to formalize. Further, by focusing on firms in a time of economic disruption, the study extends BTOF literature on firm behavior in times of crises to informal firms. Informal firms predominantly operate in developing economy contexts characterized by weak or absent formal institutional support. In times of widespread disruptions, the absence of such robust support increases the complexity of engaging in a risky organizational change such as formalization. Further, informal firms frequently rely on legitimacy before stakeholders of informal institutions for existence. Hence legitimacy before such stakeholders is a key aspiration pursued simultaneously with financial goals. How firms balance multiple aspirations and their attendant stakeholders in times of economic disruption is thus an important extension of the current discourse.

Finally, we draw on institutional theory to conceptualize informal firm formalization as a movement between two different and conflicting institutional logics. In doing so, firstly, we highlight the uncertain and potentially strategic nature of the decision to formalize for informal firms. Secondly, findings from our study indicate that rather than formalize completely or remain completely informal, informal firms may rather adopt varying levels of formalization based on the formality-informality continuum (Bruton, Ireland, & Ketchen, 2012) in response to interactions between financial performance and legitimacy aspirations. Therefore, informal firms combine different elements of two logics based on the interaction between these aspirations to maintain an "optimal" degree of formality (De Castro et al., 2014; Ram, Edwards, Meardi, Jones, & Doldor, 2020). These findings contribute evidence to clarifying the mechanism by which the agency of organizational and individual actors lead to variation in how multiple logics become instantiated within firms (Besharov & Smith, 2014). Our study suggests that the instantiation of multiple logics within firms is influenced by interactions among the firms' multiple and sometimes conflicting aspirations.

The study is, however, not without limitations. Firstly, the experimental vignette methodology adopted for the study means that firm owners/ managers express willingness to formalize based on hypothetical scenarios. We recognize that such expressions of the willingness of decision-makers to formalize may not necessarily translate into the actual formalization of firms, as actual behavior might be different from intentions. Secondly, our study focused on a single cluster of informal firms with a unique history with formal institutions in Ghana. Hence, the results may not necessarily extend to other clusters or informal firms in their entirety.

Appendix A

Table 3.1A: Descriptive Statistics for Variables in Study 1

Variable	Observations	Mean	Std. Dev.	Min	Max
Formalization	596	12.59	3.18	3.00	15.00
Business name	596	0.81	0.39	0.00	1.00
National tax	596	0.81	0.39	0.00	1.00
Municipal tax	596	0.78	0.41	0.00	1.00
Age	596	39.78	9.41	22.00	73.00
Gender	596	0.09	0.29	0.00	1.00
Industry experience	596	10.61	8.11	0.00	42.00
Legal responsibility	596	4.36	0.81	1.00	5.00
Firm age	532	11.48	8.07	0.00	42.00
Cost of informality	596	3.45	1.37	1.00	5.00
Firm size	596	4.58	5.61	1.00	51.00
NATUG involvement	596	3.84	1.64	0.00	5.00
Cluster dependence	596	2.82	1.24	1.00	5.00
Covid effect	596	4.56	0.70	1.00	5.00

Table 3.2A: Predicted probabilities for each treatment group at each level of formalization

Formalization level	Treatment	Margin	Error	Sig
Low formalization	Above Performance	0.005	0.006	0.362
	Below Performance	0.153	0.022	0.000
	Equal Performance	0.010	0.007	0.143
Medium formalization	Above Performance	0.124	0.023	0.000
	Below Performance	0.324	0.034	0.000
	Equal Performance	0.197	0.026	0.000
	Above Performance	0.870	0.023	0.000
High formalization	Below Performance	0.523	0.037	0.000
	Equal Performance	0.793	0.027	0.000

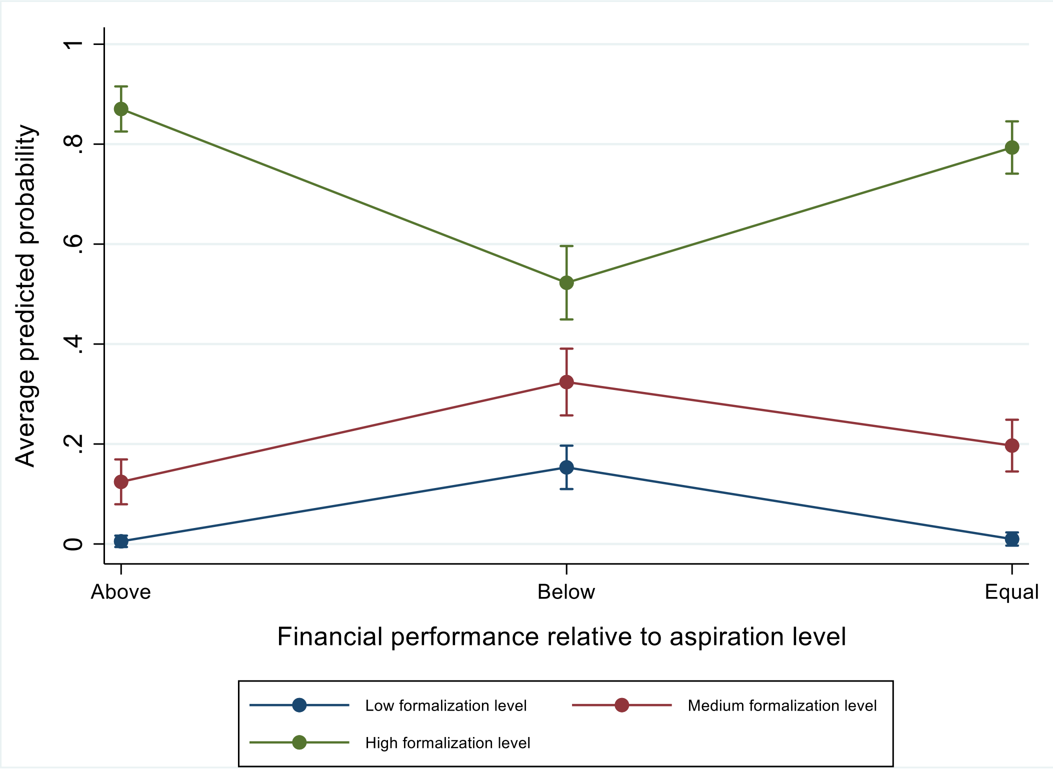

Figure 3.1A: Predicted probabilities for each treatment group at each level of formalization

Table 3.2A: Results of logistic regression with fixed-effects using types of formalization as the dependent variable

VARIABLES	(Model 1) Business Name	(Model 2) National Tax	(Model 3) Municipal Tax
Financial Performance			
Above Aspiration	1.913***	0.707	0.481
	(0.626)	(0.472)	(0.490)
Below Aspiration	-1.873***	-2.476***	-1.631***
	(0.417)	(0.499)	(0.459)
Observations	175	172	112
Number of individuals	63	60	41
Individual-level fixed effects	YES	YES	YES
Firm fixed effects	YES	YES	YES
Pseudo R2	0.550	0.537	0.299

Appendix B

Table 3.1B: Descriptive statistics for variables in study 2

Variable	Observations	Mean	Std. Dev.	Min	Max
Formalization	576	12.53	3.06	3.00	15.00
Business name	576	0.74	0.44	0.00	1.00
National tax	576	0.84	0.37	0.00	1.00
Municipal tax	576	0.85	0.36	0.00	1.00
Age	576	38.65	9.10	20.00	71.00
Gender	576	0.26	0.44	0.00	1.00
Industry experience	576	11.30	8.20	0.00	37.00
Legal responsibility	576	4.42	0.76	1.00	5.00
Firm age	557	10.41	7.97	0.00	43.00
Cost of informality	576	3.45	1.34	1.00	5.00
Firm size	576	2.58	2.37	1.00	27.00
NATUG involvement	576	3.37	2.07	0.00	5.00
Cluster dependence	576	3.19	1.50	1.00	5.00
Covid effect	576	3.59	0.60	1.00	4.00

Table 3.2B: Predicted probabilities for each treatment group at each level of formalization

Formalization level	Treatment	Margin	Error	Sig
Low formalization	Above legitimacy	0.024	0.013	0.063
	Below legitimacy	0.052	0.018	0.003
	Equal legitimacy	0.036	0.014	0.010
Medium formalization	Above legitimacy	0.230	0.030	0.000
	Below legitimacy	0.386	0.035	0.000
	Equal legitimacy	0.218	0.029	0.000
High formalization	Above legitimacy	0.746	0.030	0.000
	Below legitimacy	0.561	0.034	0.000
	Equal legitimacy	0.746	0.030	0.000

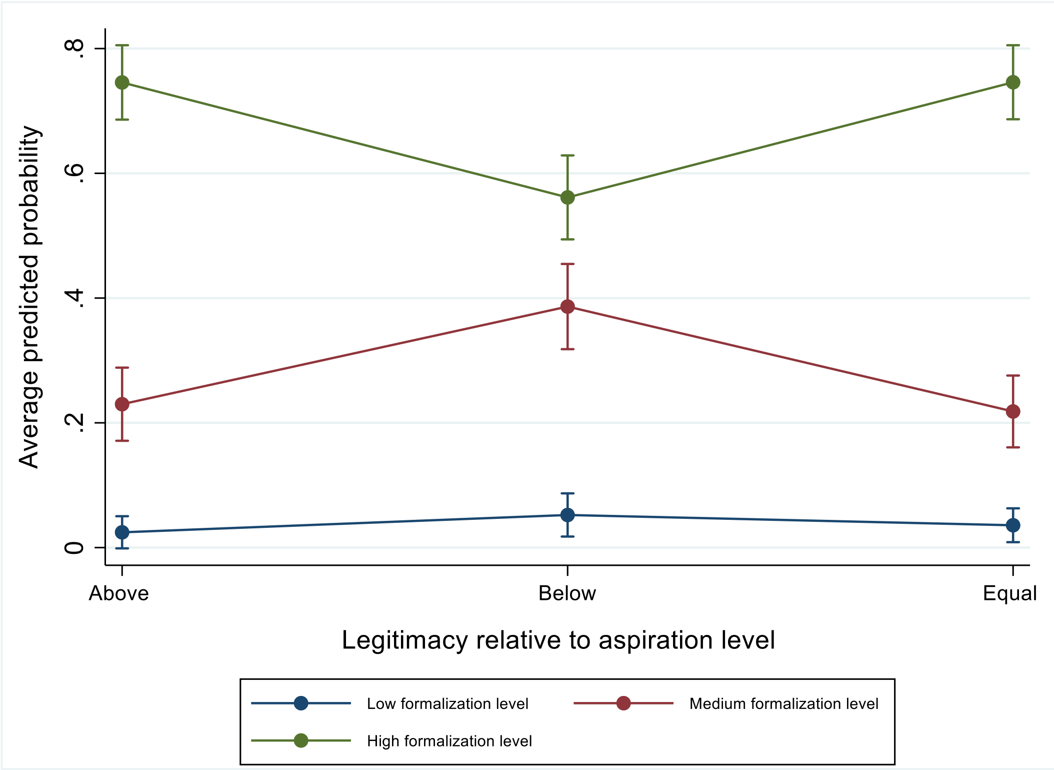

Figure 3.1B: Predicted probabilities for each treatment group at each level of formalization

Table 3.3B: Results of logistic regression with fixed-effects using types of formalization as the dependent variable

VARIABLES	(1) Business name	(2) National tax	(3) Municipal tax
Legitimacy			
Above Aspiration	-0.0839	0.659	-0.122
	(0.308)	(0.432)	(0.435)
Below Aspiration	-1.113***	-1.299***	-0.936**
	(0.307)	(0.371)	(0.450)
Observations	215	152	98
Number of individuals	74	52	34
Individual-level fixed effects	YES	YES	YES
Firm fixed effects	YES	YES	YES
Pseudo R2	0.111	0.255	0.0748

Appendix C

Table 3.1C: Descriptive statistics for variables in study 3

Variable	Observations	Mean	Std. Dev.	Min	Max
Formalization	841	12.87	3.09	3.00	15.00
Business name	841	0.80	0.40	0.00	1.00
National tax	841	0.87	0.34	0.00	1.00
Municipal tax	841	0.88	0.33	0.00	1.00
Age	841	37.39	9.31	18.00	74.00
Gender	841	0.30	0.46	0.00	1.00
Industry experience	841	10.39	8.50	0.00	35.00
Legal responsibility	841	4.40	0.61	2.00	5.00
Firm age	809	8.83	7.46	0.00	37.00
Cost of informality	841	3.61	1.35	1.00	5.00
Firm size	841	2.39	2.29	1.00	21.00
NATUG involvement	841	2.94	2.16	0.00	5.00
Cluster dependence	841	3.17	1.50	1.00	5.00
Covid effect	841	4.46	0.71	1.00	5.00

Table 3.2C: Predicted probabilities for each treatment group at each level of formalization

Formalization level	Treatment	Margin	Error	Sig.
Low formalization	Low legitimacy X High performance	0.011	0.006	0.088
	High legitimacy X Low performance	0.042	0.014	0.002
	High legitimacy X High performance	0.028	0.012	0.021
	Low legitimacy X Low performance	0.083	0.019	0.000
Medium formalization	Low legitimacy X High performance	0.143	0.023	0.000
	High legitimacy X Low performance	0.256	0.029	0.000
	High legitimacy X High performance	0.117	0.024	0.000
	Low legitimacy X Low performance	0.322	0.033	0.000
High formalization	Low legitimacy X High performance	0.846	0.023	0.000
	High legitimacy X Low performance	0.702	0.031	0.000
	High legitimacy X High performance	0.855	0.026	0.000
	Low legitimacy X Low performance	0.595	0.033	0.000

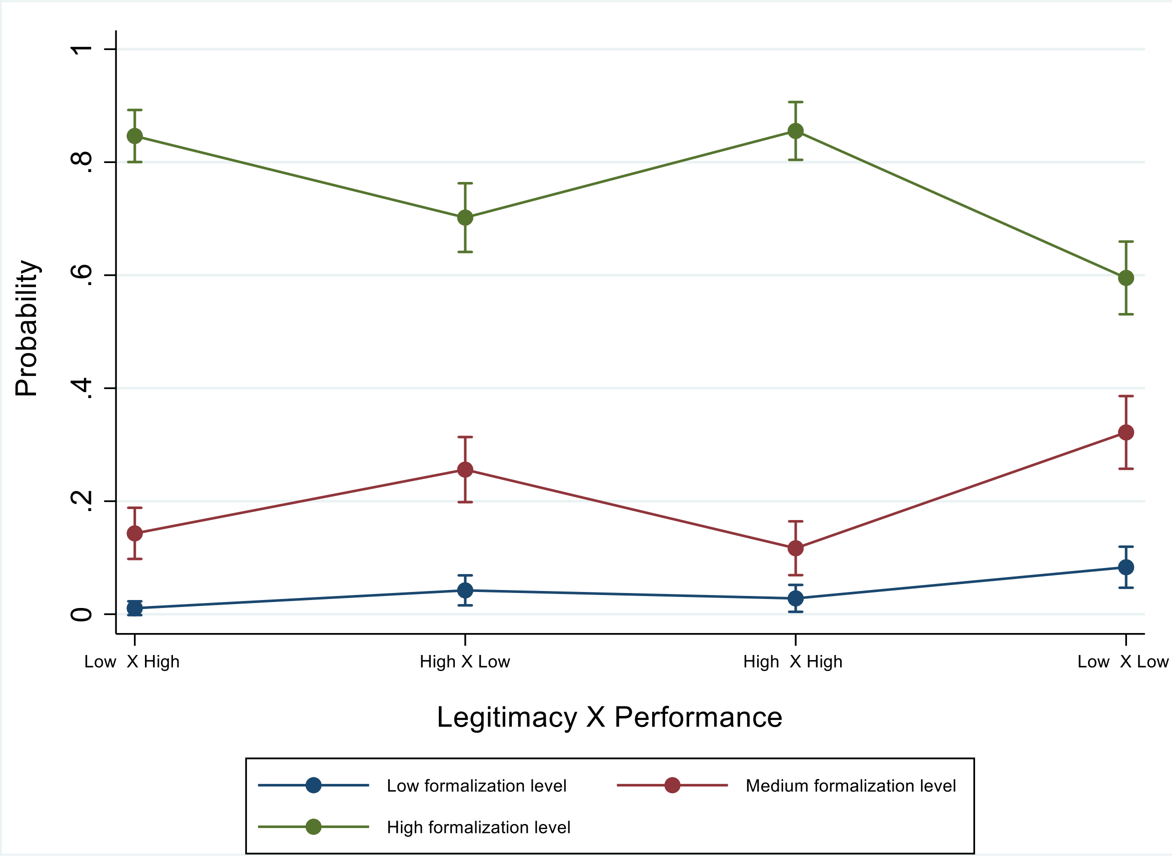

Figure 3.1C: Predicted probabilities for each treatment group at each level of formalization

Table 3.3C: Results of logistic regression with fixed-effects using types of formalization as dependent variable

VARIABLES	(Model 1) Business name	(Model 2) National tax	(Model 3) Municipal tax
Legitimacy X Performance			
Low legitimacy X High performance	0.458	0.477	-0.154
	(0.457)	(0.607)	(0.628)
High legitimacy X Low performance	-0.852**	-1.500***	-1.054*
	(0.418)	(0.513)	(0.597)
Low legitimacy X Low performance	-1.683***	-2.211***	-2.196***
	(0.419)	(0.518)	(0.599)
Observations	275	217	142
Number of individuals	79	61	39
Individual-level fixed effects	YES	YES	YES
Firm-fixed effects	YES	YES	YES
Pseudo R2	0.234	0.346	0.253

Appendix D: Study 1 sample vignette set

Vignette for performance equal aspiration level

Now, we are not talking about your current business. I will like us to talk about an imaginary business. So please imagine that you are running an imaginary business. Also, imagine that you have set an objective for the imaginary business to make sales of Ghc 1000 a month. For the past four months, you have consistently met your monthly target.

It is believed by business experts that registering the business with the Registrar General and paying taxes to the Ghana revenue authority (GRA) puts businesses in a better position to win big contracts from big companies and make it easier to get loans from Banks. They therefore believe that registering your businesses has the potential to increase the performance of your business. Registering the business does not however give automatic success any business that registers. Some businesses are not able to successfully compete for the big contracts and in that case the business performs worse than it was performing before the registration. Registering your business and paying taxes can therefore lead to higher performance than you have now if you win contracts but lead to lower performance than you have now if you do not win contracts.

Vignette for performance above aspiration level

Talking about the same imaginary business, I will like you to imagine that you have set an objective for the imaginary business to make a sales of Ghc 1000 a month. Also, imagine that this time, for the past four months, you have consistently exceeded your monthly target by a small margin.

As mentioned earlier, business experts believe that registering your business and paying taxes can either lead to higher performance of your imaginary business than you have now if you win the big contracts that come with registering your business and paying taxes or lead to lower performance than you have now if you do not win the big contracts.

Vignette for performance below aspiration level

Talking about the same imaginary business, I will like you to imagine that you have set an objective for the imaginary business to make a sales of Ghc 1000 a month. Also, imagine that, this time, for the past four months, you have consistently missed your monthly target by a small margin.

As mentioned earlier, business experts believe that registering your business and paying taxes can either lead to higher performance of your imaginary business than you have now if you win the big contracts that come with registering your business and paying taxes or lead to lower performance than you have now if you do not win the big contracts.

Appendix E: Study 2 sample vignette set

Vignette for legitimacy equal to aspiration Level

Now, we are not talking about your current business. I will like us to talk about an imaginary business. So please imagine that you are running an imaginary business. Also imagine that your imaginary business depends a lot on the people in the community around it for customers, supply of your raw materials and borrowing of money whenever your business is in distress. Therefore, it can be said that your imaginary business depends on the people in the community around it for survival. For the past four months, your business has maintained its level of involvement in the activities of the community as compared to the past. The members of the community have therefore maintained the level to which they recognize your business as an important part of the community as compared to the past. This means that your business will maintain the ease with which it gets customers, supply of raw materials or borrow money from the people in the community compared to the past.

It is believed by business experts that registering the business with the Registrar General and paying taxes to the Ghana Revenue Authority (GRA) puts businesses in a better position to win big contracts from big companies and make it easier to get loans from Banks. They, therefore, believe that registering your businesses has the potential to increase the financial performance of your business. However, registering your business may make people in the community around you feel that you consider your business as now more important than your relationship with the community and may therefore reduce the level to which they are willing to buy your products, supply raw materials to your business and give you loans when you are in distress. Additionally, registering the business does not give automatic success to every business that registers. Some businesses are not able to successfully compete for the big contracts and in that case the business performs worse than it was performing before the registration. Registering your business, therefore, can lead to higher financial performance than you have now if you can win big contracts but may lead to lower financial performance than you have now if you do not win big contracts.

Vignette for legitimacy Above Aspiration Level

I will like us to talk about the same imaginary business that depends a lot on the people in the community around it for customers, supply of your raw materials and borrowing of money in times of business distress. However, this time, I will like you to imagine that in contrast to the level to which members of the community recognize your business as an important part of the community in the first scenario. For the past four months, the members of the community have slightly increased the level to which they recognize your business as an important part of the community as compared to the past. This means that it will be slightly easier for your business to get customers, supply of raw materials or borrow money from the people in the community compared to the past.

As mentioned earlier, business experts believe that registering your business and paying taxes can either lead to higher financial performance of your imaginary business than you have now if you win the big contracts that come with registering your business and paying taxes or lead to lower financial performance than you have now if you do not win the big contracts. However, registering your business may make people in the community around you feel that you consider your business as now more important than your relationship with the community and they may, therefore, reduce the level to which they are willing to buy your products, supply raw materials to your business and give you loans when you are in distress.

Vignette for legitimacy below Aspiration Level

I will like us to talk about the same imaginary business that depends a lot on the people in the community around it for customers, supply of your raw materials and borrowing of money in times of business distress. However, this time, I will like you to imagine that in contrast to the level to which members of the community recognize your business as an important part of the community in the first scenario. For the past four months, the members of the community have slightly reduced the level to which they recognize your business as an important part of the community as compared to the past. This means that it will be slightly more difficult for you to get customers, supply of raw materials or borrow money from the community for your business as compared to the past.

As mentioned earlier, business experts believe that registering your business and paying taxes can either lead to higher financial performance of your imaginary business than you have now if you win the big contracts that come with registering your business and paying taxes or lead to lower financial performance than you have now if you do not win the big contracts. However, registering your business may make people in the community around you feel that you consider your business as now more important than your relationship with the community and they may, therefore, reduce the level to which they are willing to buy your products, supply raw materials to your business and give you loans when you are in distress.

Appendix F: Study 3 sample vignette set

Treatment (Low legitimacy X High performance):

Now, we are not talking about your current business. I will like us to talk about an imaginary business. So please imagine that you are running an imaginary business. Also imagine that your imaginary business depends a lot on the people in the community around it for customers, supply of your raw materials and borrowing of money whenever your business is in distress. Therefore, it can be said that your imaginary business depends on the people in the community around it for survival. For the past four months, however, your business has not been actively involved in the activities of the community. The people in the community have therefore slightly reduced the level to which they recognize your business as an important part of the community as compared to the past. This means that it will be slightly more difficult for you to get customers, supply of raw materials or borrow money from the community for your business as compared to the past. However, even though you have set an objective for the imaginary business to make sales of Ghc 1000 each month. For the past four months, you have consistently exceeded your monthly target by a small margin.

It is believed by business experts that registering the business with the Registrar General and paying taxes to the Ghana Revenue Authority (GRA) puts businesses in a better position to win big contracts from big companies and make it easier to get loans from Banks. They, therefore, believe that registering your businesses and paying taxes has the potential to increase the performance of your business. However, registering your business may make people in the community around you feel that you consider your business as now more important than your relationship with the community and may therefore reduce the level to which they are willing to buy your products, supply raw materials to your business and give you loans when you are in distress. Additionally, registering the business does not give automatic success to every business that registers. Some businesses are not able to successfully compete for the big contracts and in that case the business performs worse than it was performing before the registration. Registering your business and paying taxes, therefore, can lead to higher performance than you have now if you can win big contracts but may lead to lower performance than you have now if you do not win big contracts.

Treatment (High legitimacy X Low performance):

I will like us to talk about the same imaginary business that depends a lot on the people in the community around it for customers, supply of your raw materials and borrowing of money in times of business distress. However, this time, I will like you to imagine that in contrast to the level to which members of the community recognize your business as an important part of the community in the first scenario. For the past four months, your business has been actively involved in the activities of the community. The members of the community have therefore slightly increased the level to which they recognize your business as an important part of the community as compared to the past. This means that it will be slightly easier for your business to

get customers, supply of raw materials or borrow money from the people in the community compared to the past. However, even though you have set an objective for the imaginary business to make sales of Ghc 1000 each month. For the past four months, you have consistently missed your monthly target by a small margin.
As mentioned earlier, business experts believe that registering your business and paying taxes can either lead to higher performance of your imaginary business than you have now if you win the big contracts that come with registering your business and paying taxes or lead to lower performance than you have now if you do not win the big contracts. However, registering your business may make people in the community around you feel that you consider your business as now more important than your relationship with the community and they may, therefore, reduce the level to which they are willing to buy your products, supply raw materials to your business and give you loans when you are in distress.

Treatment (High legitimacy X High performance):

I will like us to talk about the same imaginary business that depends a lot on the people in the community around it for customers, supply of your raw materials and borrowing of money in times of business distress. However, this time, I will like you to imagine that in contrast to the level to which members of the community recognize your business as an important part of the community in the first scenario. For the past four months, your business has been actively involved in the activities of the community. The members of the community have therefore slightly increased the level to which they recognize your business as an important part of the community as compared to the past. This means that it will be slightly easier for your business to get customers, supply of raw materials or borrow money from the people in the community compared to the past. Additionally, even though you have set an objective for the imaginary business to make sales of Ghc 1000 each month. For the past four months, you have consistently exceeded your monthly target by a small margin.

As mentioned earlier, business experts believe that registering your business and paying taxes can either lead to higher performance of your imaginary business than you have now if you win the big contracts that come with registering your business and paying taxes or lead to lower performance than you have now if you do not win the big contracts. However, registering your business may make people in the community around you feel that you consider your business as now more important than your relationship with the community and they may, therefore, reduce the level to which they are willing to buy your products, supply raw materials to your business and give you loans when you are in distress.

Treatment (Low legitimacy X Low performance):

I will like us to talk about the same imaginary business that depends a lot on the people in the community around it for customers, supply of your raw materials and borrowing of money in times of business distress. However, this time, I will like you to imagine that in contrast to the level to which members of the community recognize your business as an important part of the community in the first scenario. For the past four months, however, your business has not been actively involved in the activities of the community. The people in the community have therefore slightly reduced the level to which they recognize your business as an important part of the community as compared to the past. This means that it will be slightly more difficult for you to get customers, supply of raw materials or borrow money from the community for your business as compared to the past. Additionally, even though you have set an objective for the imaginary business to make sales of Ghc 1000 each month. For the past four months, you have consistently missed your monthly target by a small margin.

As mentioned earlier, business experts believe that registering your business and paying taxes can either lead to higher performance of your imaginary business than you have now if you win the big contracts that come with registering your business and paying taxes or lead to lower performance than you have now if you do not win the big contracts. However, registering your business may make people in the community around you feel that you consider your business as now more important than your relationship with the community and they may, therefore, reduce the level to which they are willing to buy your products, supply raw materials to your business and give you loans when you are in distress.

Chapter 4

PERFORMANCE DISCREPANCY, SOCIAL EMBEDDEDNESS, AND INFORMAL FIRMS' WILLINGNESS TO FORMALIZE

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Abstract

Despite the social embeddedness of informal firms, there is limited understanding of how this key characteristic influences their formalization decisions. Drawing on the behavioral theory of the firm and social embeddedness theory, I test a behavioral mechanism by which the search for improved performance rather than improved performance by itself triggers informal firms' willingness to formalize. I test the proposed mechanism using a random sample of 1,898 informal firms across 10 Latin American and African countries. I find that informal firms with sales performance below their aspiration level are more willing to formalize than informal firms with sales performance equal to or above aspiration level. I further test the moderating effect of two dimensions of social embeddedness, family and local embeddedness, on the proposed mechanism. I find that social embeddedness affects the relationship between performance discrepancy and willingness to formalize but primarily among firms with performance above aspiration level.

Keywords: Behavioral theory of the firm, Informal firms, Formalization, Family embeddedness, Local embeddedness

4.0 INTRODUCTION

Firms are socially embedded (Granovetter, 1985; Jack & Anderson, 2002), and so is the strategy process by which firms make key decisions that affect their performance (Foss, 2021). The embeddedness in their social environment enables firms to access resources and relationships that increase their capacity for action beyond the boundaries of their own resources and capabilities (Uzzi, 1997). At the same time, social embeddedness imposes cognitive and cultural limitations on what practices, actions, and strategies are deemed as acceptable (Tina Dacin et al., 1999; Zukin, DiMaggio, & DiMaggio, 1990). Hence, decision-makers of socially embedded firms may limit information search to the context within which their firm is socially embedded (Uzzi, 1997) or limit the information used in the decision-making to those that primarily align with prevailing cognitive schema (Cerrato et al., 2016). Decision-making in socially embedded firms may therefore be characterized by bounded rationality rather than economic rationality (Dequech, 2003; Granovetter, 1985). Arguably, the effects of social embeddedness on firm decision-making become even more pronounced when firms rely on alignment with socially constructed norms and values for their survival and competitive advantage (de Andrade, Bruhn, & McKenzie, 2016; Webb, Tihanyi, Ireland, & Sirmon, 2009; Williams & Martinez-Perez, 2014).

Despite the widespread social embeddedness of informal firms - firms that operate outside the legal framework of a state but in alignment with socially accepted norms and values (Webb et al., 2009) -, the recent uptake in the management literature in answering the question of when and why informal firms formalize lacks an empirical estimation of the effect of social embeddedness (e.g., Assenova & Sorenson, 2017; Dau & Cuervo-Cazurra, 2014; Ram, Edwards, Meardi, Jones, & Doldor, 2019; Sutter, Webb, Kistruck, Ketchen, & Ireland, 2017). Formalization refers to registering with national agencies responsible for business registration and complying with formal regulations associated with operations, taxes, and labor (Godfrey, 2011; Siqueira et al., 2016; Williams et al., 2017).

Firstly, studies have generally assumed that informal firms adopt a rational decision process that ignores the social implications of formalization to focus on its financial costs vis-a-vis benefits (Sutter et al., 2017). They argue that firms make a rational choice to remain informal by comparing the high financial cost vis-à-vis the minimal benefits of operating formally (Blackman, 2000; de Soto, 1989; Siqueira et al., 2016). The findings from this stream of literature indicate that informal firms become more likely to formalize when substantial positive performance leaves a firm with excess resources to cover formalization costs or makes the firm so big that it becomes uneconomical to operate informally (Gelb et al., 2009; Nguyen et al., 2014;

Williams et al., 2017). These studies, however, ignore the possibility that underperforming informal firms driven by a search for performance improvements can be more open to the prospect of formalization. The prevailing understanding is that formalization is superior to informality in productivity and firm performance (La Porta & Schleifer, 2014; Mbaye & Benjamin, 2015). Indeed, the empirical evidence follows that formal firms outperform their informal counterparts under the same macroeconomic conditions (Assenova & Sorenson, 2017; Benjamin & Mbaye, 2012; La Porta & Shleifer, 2008; Rand & Torm, 2012). Thus, it is plausible to expect that underperforming informal firms may consider formalization as an option for performance improvement.

Further, the limited studies that have accounted for the effect of social embeddedness (e.g., Thapa Karki, Xheneti, & Madden, 2020; Uzo & Mair, 2014) have been qualitative and have focused on broad categorizations of social embeddedness. This focus makes it difficult to disentangle the independent effects of different dimensions of social embeddedness (see Uzo and Mair (2014) for exception). Thus, despite the critical contributions of existing studies, the extent to which social embeddedness - a key characteristic of informal firms - affects informal firms' formalization decisions remains unclear. Further, given that decision-making in socially embedded firms may not align with the dictates of economic rationality, the focus on the cost-benefit calculus of formalization may represent an incomplete understanding of informal firms' decision to formalize. The effect of this is that the policy initiatives that have targeted the reduction in the costs of registering and operating in the formal economy have yielded little or no results in terms of formalizing informal firms (Bruhn, 2011; de Mel et al., 2013; Galiani et al., 2017).

Informal firms, however, contribute disproportionately to precarious working conditions, environmental pollution, and shortfalls in the tax revenue of countries (Blackman et al., 2006; International Labour Office (ILO), 2018; Levy, 2008). This is in addition to evidence to the fact that informality is inferior to formality in terms of firms level productivity and performance (Assenova & Sorenson, 2017; Benjamin & Mbaye, 2012; La Porta & Schleifer, 2014). Hence, the formalization decision of informal firms is essential in terms of its effects on national and firm-level performance.

To address the current challenges in the literature, this study sidesteps the focus on a cost-benefit calculus of formalization to test a behavioral mechanism by which informal firms become willing to formalize or not. I argue that formalization is an uncertain and risky institutional change for informal firms. It regularly implies that informal firms have to make substantial financial investments, alter long-held business relationships, and change their traditional modes of operation (Godfrey, 2011; Sutter et al., 2017). For example, suppliers may work with an informal firm with the common implicit rule that the firm is informal and thus does not require invoices. Not providing an invoice post a sale is vital for such suppliers because it lowers their taxes; they can keep the percentage of sales taxes and are free of any liability. Once the informal firm decides to formalize, their suppliers lose interest in working with them; they increase their prices, delay their shipments, and might even stop providing supplies to the firm[7]. Such fundamental changes to the operations of an informal firm have the potential to affect the firm's chances of survival. Hence, I hold that formalization is an uncertain and risky decision for informal firms.

At the same time, formalization has several benefits for formalized firms. Formalized firms have the legitimacy to operate more openly, access to a broader range of contracts, access government-provided business development services, and receive increased investments (Assenova & Sorenson, 2017; Fajnzylber, Maloney, & Montes-Rojas, 2011; La Porta & Schleifer, 2014; Rand & Torm, 2012; Webb, Khoury, & Hitt, 2019). These advantages mean that formalizing would be an attractive option for firms with performance shortfalls in the informal economy. Hence, I argue that their search for performance improvement will drive informal firms with current performance below their aspiration level to become more attuned to the performance-enhancing advantages of formalization and thus more willing to formalize.

On the contrary, informal firms with performance above aspiration levels will likely use it as a good reason to avoid risky change (Baum, Rowley, Shipilov, & Chuang, 2005; Greve, 2003) and hence will be relatively less willing to formalize. Moreover, I argue that informal firms regularly depend on their social environment for resources and competitive advantage (de Andrade, Bruhn, & McKenzie, 2016; Webb, Tihanyi, Ireland, & Sirmon, 2009; Williams & Martinez-Perez, 2014). However, social embeddedness imposes cultural and cognitive limitations on what actions are deemed acceptable (Dequech, 2003; Tina Dacin et al., 1999). Hence firms' response to a risky change such as formalization would be in light of the cultural and cognitive limitations imposed by their level of embeddedness. Thus, *how does social embeddedness influence the relationship between performance relative to aspiration level and an informal firm's willingness to formalize?*

I explore this question using a survey of 1,898 informal firms operating in 10 Latin

[7] This example was provided by an anonymous reviewer of a related paper at the AOM 2021 conference

American and African countries. I find that informal firms with sales performance below their historical level (negative performance discrepancy) are more willing to formalize compared to informal firms with sales performance above their historical level (positive performance discrepancy). The willingness of informal firms with positive performance discrepancy to formalize was not significantly different from informal firms with sales performance equal to their historical sales performance (no performance discrepancy). I find that the baseline mechanism is affected differentially by the level of social embeddedness measured on two dimensions; family embeddedness and local embeddedness. Family embeddedness positively moderates the relationship between sales performance above aspiration and the willingness to formalize. On the other hand, local embeddedness had a marginal negative effect on the relationship between sales performance above aspiration and an informal firm’s willingness to formalize.

This study makes two main contributions to existing literature. Firstly, it extends the behavioral theory of the firm to informal firms, and in so doing, its contributes to building a behavioral theory of community-oriented firms (Smulowitz, Rousseau, & Bromiley, 2020). Informal firms are generally micro to small firms operating under conditions where weak macro-level formal institutions are substituted by strong, typically localized informal institutions (Webb et al., 2019, 2009). Hence, informal firms are relatively more dependent on social conformity for success or even survival compared to other community-oriented firms (e.g., community banks in the United States). Extending BTOF to such firms contributes to our understanding of community-oriented firms for which social goals may be treated as primary aspirations or aspirations simultaneously pursued with performance aspirations.

Secondly, the study contributes to building a behavioral perspective to why and when informal firms formalize. The current views of formalization emphasize it as a rational decision based primarily on the financial cost-benefit calculus of registering and operating in the formal economy (De Castro et al., 2014; Sutter et al., 2017). The result is that current studies have deemphasized the boundedly rational nature of firm decision-making under conditions of social embeddedness. The current approach highlights the boundedly rational nature of the formalization decision by recognizing the risky nature of the decision in terms of both the potential for firm failure and the social implications of formalizing for an informal firm. In so doing, the study highlights the effect of firms’ performance below aspiration level and provides an alternative mechanism that further clarifies formalization decision-making among informal firms. Further, the study provides initial estimates of the differential influence of two important dimensions of social embeddedness on informal firms' willingness to formalize.

The rest of the paper is organized as follows; firstly, I provide background on perspectives to the formalization decision in the management literature. I then discuss the behavioral theory of the firm and move on to the hypotheses tested in this study. I then present a methods section followed by the results and discussions.

4.1 THEORY AND HYPOTHESIS DEVELOPMENT

Formalization of informal firms

The management literature's approaches to understanding the formalization of informal firms can be categorized into two non-mutually exclusive categories: contingency and agency perspectives. The contingency perspective to informal firm formalization has focused on the macro and meso level environmental factors that influence informal firms' decision to formalize or not (Godfrey, 2011; Sutter et al., 2017). Research from the contingency perspective usually relies on institutional theory to argue that firms are constrained or facilitated towards formalization depending on the relative strength and effectiveness of formal and informal institutional arrangements that govern economic exchange (de Soto, 1989; Webb et al., 2019). Findings from this perspective indicate that the formalization of informal firms is influenced by the initial cost of registration (De Soto, 1989), burdensome taxes, and the cost of regulatory compliance (Dau & Cuervo-Cazurra, 2014; Webb et al., 2013). Formalization is also influenced by the quality of governance in a country (Thai & Turkina, 2014), societal-level distrust for formal institutions (Williams et al., 2017; Williams & Shahid, 2016) and the existence of substantial stakeholder support for informality (Ram et al., 2019; Thapa Karki et al., 2020; Webb et al., 2009). For example, extant literature suggests that large groups of customers are willing to buy goods outside the formal economy as a means of cutting costs or satisfying social and redistributive reasons (London et al., 2014; Williams & Martinez-Perez, 2014). Such stakeholder support creates a viable market for informal firms who otherwise are faced with doing business in dysfunctional formal markets.

The agency perspective, on the other hand, considers informal firms decision to formalize a “strategic choice” (Sutter et al., 2017: 441) that is driven or constrained by individual and firm-level factors (Grimm et al., 2012; Williams et al., 2016). At a broader level, however, this perspective to informal firm formalization may also include studies investigating institutional entrepreneurs' agency in facilitating the transition of multiple informal firms into formality (e.g. Lee & Hung, 2014; Sutter et al., 2017). At the individual level, the agency perspective indicates that the formalization of informal firms is influenced by the gender of the owner/managers (Thapa Karki et al., 2020; Xheneti et al., 2019), the age of owner/manager, the age of informal firm

(Williams et al., 2016), the level of human capital and entrepreneurial orientation of owner/managers (Grimm et al., 2012). At the firm level, findings have pointed to firm innovation, identification of high-growth opportunities (Nguyen et al., 2014; Williams & Martinez, 2014), firm performance sufficient to cover the transaction costs of formalization and firm growth that increases firm visibility and makes it unreasonably costly to be discovered by regulators (Gelb et al., 2009; Nelson & De Bruijn, 2005; Siqueira et al., 2016; Ulyssea, 2018). Studies from the agency perspective find a positive relationship between these factors and informal firms' willingness to formalize. Therefore from the agency perspective, informal firms' increased willingness to formalize is generally linked to positive firm performance in innovation and growth.

Following the agency perspective, I argue that formalization is a strategic choice that an informal firm makes to change from an institutional framework governed by informal norms and values to one governed by formal rules and regulations. Formalization for therefore involves substantial changes to the way the business operates - changing the reliance on trust and word-of-mouth to detailed contractual agreements and changing quality checks by visual inspection and touching to compliance with legal standards (Godfrey, 2011; Nelson & De Bruijn, 2005; Sutter et al., 2017). Formalization also involves making substantial financial investments on the part of the informal firm and the altering of long-held business relationships. Therefore, the dramatic changes that come with informal firm formalization make it an uncertain and risky decision. The risky nature of the formalization decision is especially true for informal firms because they frequently rely on informal norms, values, and relationships for competitive advantage (de Andrade et al., 2016; De Castro et al., 2014; Williams & Martinez-Perez, 2014). I draw on the tenets of the behavioral theory of the firm and social embeddedness to argue that informal firms' decision to engage in such a risky change will be influenced by informal firms' performance relative to their aspiration level. I further argue that the influence on performance relative to aspiration level on informal firm’s willingness to formalize is moderated by the level to which the focal firm is embedded within its social environment.

The behavioral theory of the firm

The behavioral theory of the firm (BTOF) has guided much research on risky organizational change. The theory has been applied in areas such as firms’ merger and acquisition (Iyer & Miller, 2008), changes in market position (Greve, 1998), R&D intensity and innovation (Chen & Miller, 2007; Greve, 2003a) and firms balance between financial and non-financial goals (Gaba & Greve, 2019; Rousseau et al., 2020). The central argument of BTOF is that decision-makers in firms use an aspiration level to evaluate firm performance and that the performance relative to the aspiration level influences the level of risks that firms are willing to take (Cyert & March, 1963; Greve, 1998; March & Shapira, 1987). Firstly, the decision-maker focuses attention on an aspiration level for performance. "An aspiration level represents the smallest outcome that would be deemed satisfactory by the decision-maker, given the current choice situation" (Schneider, 1992: 1053). Aspiration levels are typically set using the performance of similar firms or the historical performance of the focal firm (Greve, 1998). Second, the decision-maker uses the identified aspiration level to code outcomes as failures when performance is below the aspiration level and as successes when performance exceeds it. Third, the desire to overcome a performance failure is stronger than the desire to extend success, so decision-makers below the aspiration level are willing to accept more risks than decision-makers above the aspiration level (Audia & Greve, 2006). Therefore, firms performing below the aspiration level are motivated to engage in problemistic search, wherein managers pursue a search for a solution to an underperformance problem (Duke, Havakhor, Mui, & Parker, 2021).

Problemistic search often challenges the status quo and stimulates exploration of new practices, strategies, and actions to erase or avoid further losses (Baum et al., 2005; Lant & Shapira, 2008). Thus, firms performing below aspiration level become more open to organizational change. On the whole, problemistic search, therefore, involves exploring new actions or opportunities that will change the firm's existing operations to improve performance since existing operations do not appear sufficient to generate the desired performance level (Cerrato et al., 2016). Following BTOF, I argue that decision-makers of informal firms will use performance levels that they frequently achieve within the informal economy as an aspiration level to code a focal performance as either a failure or success. Informal firms with performance below aspiration level will therefore engage in problemistic search to resolve the negative performance discrepancy. The process of problemistic search makes the decision-makers of informal firms more open to new practices, strategies, and actions that would have otherwise been deemed too uncertain or risky. Thus I argue that the problemistic search that follows performance shortfalls will make informal firms more open to the risky institutional change that comes with formalization (Sutter et al., 2017). On the other hand, firms performing above aspiration may engage in risky organizational behavior through the process of slack search if the positive performance leads to excess firm resources. Slack search involves using excess firm resources to experiment with new actions or strategies since the firm can absorb losses from such activities - as opposed to problemistic search (Alessandri et al., 2014; Cyert & March, 1963).

The behavioral theory of informal firm formalization

Informal firms rely on localized values and norms that govern and support economic exchange rather than country-wide formal regulations and support mechanisms (Tonoyan et al., 2010; Webb et al., 2019; Williams et al., 2017). The reliance on these localized support systems means that informal firms are excluded from the broader market and support systems that formal institutions provide. Informal firms, for example, lack the legitimacy to operate openly, access to a wider range of contracts, access to available risk pooling mechanisms (e.g., insurance plans), and access to government-provided business development services (Assenova & Sorenson, 2017; Fajnzylber et al., 2011; Rand & Torm, 2012). Furthermore, many informal firms operate at small and possibly suboptimal sizes due to resource constraints or out of the need to remain small enough to escape detection by regulators (Hart, 1973; Ulyssea, 2018). Hence, empirical evidence suggeststhat informal firms have less productivity and overall performance than their formal counterparts (Assenova & Sorenson, 2017; Benjamin & Mbaye, 2012; La Porta & Schleifer, 2014; Ahmadou A. Mbaye & Benjamin, 2015).

Scholars have, however, provided several reasons regardingwhy informal firms exist. These included the high initial and transaction costs of formalization (de Soto, 1989), the desire to increase profit by avoiding tax and regulation costs (Ulyssea, 2018), the need to experiment with business ideas(Khavul et al., 2009), or the need to overcome alternative sources of liability of newness that exist in developing economies (Williams et al., 2017). Consequently, informal firms are theorized to formalize if performance is high enough to cover the initial and transaction costs of formalization, if it becomes unreasonably costly to be detected by regulators or if entrepreneurs acquire proof-of-concept for their new products or services (De Castro et al., 2014; Gelb et al., 2009; Nelson & De Bruijn, 2005). The existing explanations for informal firm formalization, however, ignore the possibility that an informal firm will be driven by a search for performance improvements to be more open to the prospect of formalization. This is inconsistent with the existing empirical evidence supporting formal firms' superior performance and productivity relative to informal firms. Following the tenets of the behavioral theory of the firm (BTOF), I argue that informal firms performing below aspiration level will engage in problemistic search wherein the managers of an underperforming informal firm will pursue a search for a solution to an underperformance problem (Cerrato et al., 2016; Duke et al., 2021). This search for a solution to the underperformance problem makes an informal firm more open to changes in strategies and practices and, hence, more open to the prospect of formalization.

Firstly, I argue that decision-makers of informal firms use performance levels frequently achieved by their firms in the informal economy as an aspiration level. More often than not, informal firms have no formal or written records of business transactions (Sutter et al., 2017; Webb et al., 2014). The absence of formal records means in the first place that decision-makers of informal firms will rely on what they perceive from experience as the average performance level of their firm to judge whether a performance is a success or failure. On the other hand, the absence of written records means it is impossible for informal firms, unlike listed firms, to objectively compare their performance against “industry standards”. The difficulty of making comparisons with similar firms is further aggravated by the fact that informal firms owners may consciously hold back success signals to reduce the demands of favor from family and other stakeholders or avoid detection by regulators (De Castro et al., 2014; Ulyssea, 2018). Based on the preceding arguments, I build the theory by focusing on informal firms' performance relative to their historical performance level (the performance level that decision-makers consider as normal to the firm). Hence the arguments apply when informal firms use their historical performance level as an aspiration level.

Secondly, given that the desire to overcome a performance failure is stronger than the desire to extend success, I argue in line with BTOF that decision-makers of informal firms performing below the historical performance level (aspiration level) will be willing to accept more risks than decision-makers of informal firms with performance above the historical performance level (Audia & Greve, 2006). Informal firms with performance below aspiration level will be motivated to engage in problemistic search by exploring new practices, strategies, and actions with the hope of avoiding further losses. Such underperforming informal firms will therefore be more open to challenging their modus operandi given that current operations do not yield a satisfactory level of performance. An underperforming firm may, for example, be more open to changing its product line to focus on more culturally relevant versions of the same product or to focus on the marginalized portions of the product’s market to reduce direct competition from larger or more formal competitors (Gebre-Egziabher, 2007). Alternatively, an underperforming informal firm may be open to new business practices or strategies that will grant it access to a wider market reach for its existing product. One such option is formalization. Formalizing will give an informal firm the legitimacy to operate more openly, access a wider range of contracts, access available risk pooling mechanisms (e.g., insurance plans), and access government-provided business development services (Assenova & Sorenson, 2017; Fajnzylber et al., 2011; Rand & Torm, 2012). However, formalizing is an uncertain decision as the drastic changes to a firm's operation that come with formalization (Sutter et al., 2017) can lead to firm failure. BTOF argues that the process of problemistic search will make underperforming informal firms risk-seeking and thus more open to the institutional change that comes with formalization. However, overperforming informal firms may consider their performance above aspiration a reason not to risk the survival of their firm. Hence, I posit that;

Hypothesis 1a (H1a): Informal firms with performance below aspiration level will be risk-seeking and thus more willing to formalize

Hypothesis 1b (H1b): Informal firms with performance above aspiration level will be risk-averse and thus less willing to formalize

Social embeddedness and the behavioral theory of informal firm formalization

Social embeddedness refers to the ongoing contextualization of economic exchange (activity) in cognitive, cultural, structural, and political environments (Tina Dacin et al., 1999; Zukin et al., 1990). Firms that are embedded in their social environment can draw on resources and relationships that increase their capacity for action beyond the boundaries of their own resources and capabilities (Uzzi, 1997). However, this embeddedness in the social environment imposes cognitive and cultural limitations on what practices, actions, and strategies are deemed acceptable. Hence, even though social embeddedness expands firms' capacity for action, it also imposes limits on what organizations can do and the ranges of opportunity that firms can explore (Dequech, 2003; Tina Dacin et al., 1999). Nevertheless, economic exchange remains socially embedded (Jack & Anderson, 2002), and even more so in the informal economy, where firms rely on alignment with socially constructed norms and values that govern and support economic exchange. Indeed, informal firms only come into existence when a substantially large group of stakeholders consider them legitimate outside the dictates of formal laws and regulations (Webb et al., 2009). The influence of social embeddedness thus becomes critical in understanding decision-making within informal firms. I expect the facilitating and constraining mechanisms of social embeddedness to influence the level to which performance discrepancy affects informal firms' willingness to formalize.

Indeed, recent work in the behavioral theory of the firm (BTOF) tradition has recognized the influence of social embeddedness on the risk and search mechanisms proposed by BTOF (Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007; O'Brien & David, 2014; Smulowitz et al., 2020). Smulowitz et al. (2020) find that local embeddedness attenuates the influence of performance below aspirations on risk-taking but amplifies the influence of performance above aspirations on community-oriented goals. On the other hand, O'Brien and David (2014) find that even though embedded firms engage in problemistic search when firm performance is below aspiration, they also increase search behavior when performance exceeds expectations. They find that when performance rises above aspirations, communitarian-oriented firms raise R&D search to "pay forward" their network of stakeholders by engaging in additional R&D search that should yield growth opportunities that will benefit these stakeholders in the future. Hence, similar to the findings of Smulowitz et al. (2020), the findings of O'Brien and David (2014) indicate that embedded firms pay more attention to their social obligations when firm performance increases above aspiration level. By extension, if the social obligations of the embedded firm do not align with performance-enhancing activities, I expect embedded firms to engage in such social obligations at the expense of performance-enhancing activities. In line with this logic, I expect social embeddedness to affect the risk-taking and search propensities of firms performing below or above aspiration level in relation to formalization. I , therefore, hypothesize these effects in two frequent manifestations of social embeddedness in the informal economy; family and local embeddedness.

Family embeddedness

Families and businesses are inextricably intertwined (Aldrich & Cliff, 2003), and this is very much so in the informal economy where entrepreneurs frequently rely on family resources and relations to start and grow their firms (Khavul et al., 2009; Webb, Pryor, & Kellermanns, 2015). Family members can serve as critical sources of advice, knowledge, capital resources, and emotional support. Hence, in contexts characterized by weak formal institutions, such as is present in many developing economies, firms can become highly dependent on families for resources and support (Ge, Carney, & Kellermanns, 2019). Informal firms, for example, depend on family income as a source of initial and growth financing of business (Ngek, 2018). Additionally, the family frequently serves as a source of unpaid or underpaid labor (Aldrich & Cliff, 2003; Leonard, 2000).

The deep involvement of the family and the low resource availability of many contexts with weak formal institutions mean the economic and social well-being of many families are tied to the fortunes of family-embedded firms (Webb, Pryor, & Kellermanns, 2015). Indeed, in many informal family economic units, family and business financial accounts may be operated as one (Chen, 2005; Hussmanns, 2004). Additionally, for informal firms that have moved beyond the provision of survivalneeds of a family may still have value for the socioemotional wealth of the family. Hence such firms will have other primary reference aspirations such as socioemotional wealth rather than financial performance (Gómez-Mejía et al., 2007). Thus, I argue that the primary effect of family embeddedness on informal firms is that the risk-taking propensities of such firms are significantly attenuated. Decision-makers of informal firms that have close linkages with the economic and social well-being of family members will be less willing to risk firm failure in an attempt to improve firm performance. Additionally, family-embedded informal firms that use socioemotional wealth as their primary reference point will be willing to accept significant risk to their performance while protecting the survival of such firms (Gómez-Mejía et al., 2007). I, therefore, expect family-embedded informal firms will be less willing to undertake the risky institutional change that comes with formalization. Hence, I posit that;

Hypothesis 2a (H2a): The risk-seeking propensities of informal firms performing below aspiration level will be negatively moderated by the level of family embeddedness, thus reducing the baseline willingness to formalize.

Hypothesis 2b (H2b): The risk-aversion propensities of informal firms performing above aspiration level will be positively moderated by the level of family embeddedness, thus increasing the baseline unwillingness to formalize.

Local embeddedness

Local embeddedness is defined as the involvement of economic actors in a geographically delimited network and/or institutional setting (Baù, Chirico, Pittino, Backman, & Klaesson, 2019). The dependence of informal firms on localized norms and values that govern and support economic exchange (Webb et al., 2019, 2009) makes the concept of local embeddedness relevant to informal firm decision-making. Local embeddedness grants informal firms contacts with customers and suppliers in the specified geographic area and facilitates access to tangible assets such as a labor force and intangible assets, such as localized knowledge (Baù et al., 2019; Kalantaridis, 2009; Webb et al., 2019). Local embeddedness means that informal firms can leverage localized knowledge and relationships to fit their products to the local institutional and market demands, thus, acquiring contextualized competitive advantage (Jack & Anderson, 2002; de Andrade et al., 2016; De Castro et al., 2014; Williams & Martinez-Perez, 2014).

On the other hand, high dependence on localized norms and values and high fit between firm resources and the local institutional and market environment will mean that such informal firms will exhibit higher inertia in responding to the institutional change that comes with formalization. Firms that fit their entire operations around the local institutional and market environment will incur relatively higher adjustment costs in the change process required for formalization. The higher adjustment cost is because the product and process standards and requirements of the broader formal market may be significantly different from the standards and requirements of localized informal institutional norms and values. Additionally, informal firms that depend on the local fit for competitive advantage may experience an erosion of such a competitive advantage with formalization. Indeed, formalization in some localized contexts can be viewed as bucking informal norms and values that others followed, thus leading to the firm's delegitimization within its locality (De Castro et al., 2014; Thapa Karki et al., 2020). The inability to successfully secure the support of stakeholders in the formal economy in such an instance could lead to the firm's failure. Thus, high local embeddedness significantly increases the risk of firm failure that comes with firm formalization. Behavioral theory of the firm asserts that decision-makers whose firms face a possible threat to survival become risk-averse (March & Shapira, 1987, 1992) to avoid putting their firms in danger.

Furthermore, locally embedded informal firms that engage in problemistic search in the face of performance below aspiration level are also likely to search "deeply" for solutions within the existing relationship within the locality (Uzzi, 1997: 50). Such a "deep" search in the local environment truncates the likelihood that such firms will consider or attach a premium to the wider market reach and scope advantages of formalization. Locally embedded informal firms may, for example, focus on securing cheaper or free sources of raw materials (Webb et al., 2013) within the locality to cut down costs or use the existing firm resources to produce alternative products of value to customers in the locality. In essence, high embeddedness in the local environment will reduce the risk-taking propensities of informal firms and/or truncate the scope of their problemistic search, making them less willing to formalize. Hence, I posit that;

Hypothesis 3a (H3a): The risk-seeking propensities of informal firms performing below aspiration level will be negatively moderated by the level of local embeddedness, thus reducing the baseline willingness to formalize

Hypothesis 3b (H3b): The risk aversion of informal firms performing above aspiration level will be positively moderated by the level of local embeddedness, thus increasing the baseline unwillingness to formalize

4.2 DATA

The data source is the World Bank's Informal Enterprise Survey (IES), a random sample of informal or unregistered firms collected by the World Bank in 10 countries in Latin America and Africa between 2010 and 2013. The data are a pure cross-section of 1,898 firms for which information is available on all the variables used in the analyses. Following the IES data collection protocol, this study defines informal firms as those that are not registered with the relevant business registration authorities within their country of operation. This definition is consistent with many other studies in the related literature (Loayza and Roginlini 2011, Gindling and Terrell 2005, Rand and Torm 2012, Mead and Morrisson 1996).

In general, a nationally representative sample of informal firms would require a sampling frame consisting of a complete list of all informal firms in the country. However, the unregistered nature of informal firms means that such a list does not exist for any country at any level. Hence, most studies using data on informal firms tend to rely on a random sample of informal firms taken from few main urban centers of the country (Mahoney & Skousen, 2015; McKenzie & Sakho, 2010; Nguyen et al., 2014; Rand & Torm, 2012). In addition, to scope of coverage, a considerable advantage of the IES is that they employ the same methodology and identical survey instruments across countries, especially for the years included in this study.

Data collection for the IES is carried out as follows. An urban center is typically divided into zones to yield a predetermined number of interviews. For example, for Kenya IES, five urban centers were broken down into 122 zones (Islam, 2019). A number of zones are then randomly selected to be interviewed with more than one enumerator usually allocated to each zone. Each enumerator is presented with maps identifying a predefined starting point that tends to be at opposite ends of the zone to ensure interviews are dispersed within a zone. The enumerators are instructed to follow the direction of the street and obtain a predetermined number of interviews. This process limits selection bias given the zones are randomized across the city, but the process cannot ensure a representative sample of informal firms (*ibid*, 2018).

4.3 MEASURES

Dependent variable. The dependent variable *formalize,* measures the respondent's willingness for their firm to be registered with the relevant business registration office in the country where the informal firm is located. It was coded 1 if the response is "yes" to the question "Would you like for your business to be registered with the (the name of the registration office where businesses are required to register in each country inserted)?" and 0 otherwise. This is consistent with the earlier definition for firm informality and also with other studies (McKenzie & Sakho, 2010; Nguyen et al., 2014; Rand & Torm, 2012).

Independent variables. The focal independent variable *performance discrepancy* is a categorical measure that was coded 1 if the total sales for the previous month is "below what is normally sold by the business" , 2 if total sales for the previous month equal to "what is normally sold by the business" and 3 if the total sales for the previous month represented above what is normally sold by the business. The measure, therefore, captures the respondent's perception of the firm's performance in the immediate past month relative to the historical performance level of the focal firm. Thus, "what is normally sold by the business" represents the aspiration level in this study. This measure is appropriate for the study for several reasons. Firstly, the widespread absence of formal accounting practices among informal firms means (Thai et al., 2017) that financial estimates provided by firms in the informal sector are largely based on recall and hence may suffer from recall bias. Secondly, given the level of discretion that the respondent has in providing such an estimate in the absence of formal records, there is a higher possibility of desirability bias where respondents may either overestimate or underestimate the value of financial estimates provided. Providing a subjective measure of the performance relative to what is normal is not only appropriate in reducing recall and desirability bias in the absence of formal records but also is plausible as the natural mode of performance measurement in the informal sector.

To test the moderating role of family embeddedness, I follow Ge et al. (2019) to measure the variable, *family embeddedness,* as the ratio of the total numbers of employees of the firm that are members of the largest owner's family, including the largest owner. To test for the moderating effect for local embeddedness, I measure the variable *local embeddedness* as the total number of years that the largest owner has lived in the city or community where the firm was located, following Bau et al. (2019) and Dahl and Sorensen (2012).

Control variables. I control several individual and firm-level factors that are likely to affect willingness to formalize and are regularly controlled for informal firm formalization studies using surveys (Mahoney & Skousen, 2015; McKenzie & Sakho, 2010; Nguyen et al., 2014; Rand & Torm, 2012). I also include country dummies to account for macro-level variations in the business and regulatory environments across countries and city size dummies to account for city/regional variations in the regulatory environment. Countries included in the survey are presented in Table A1 of Appendix A.

At the individual level I control for *age*, the age of the largest owner measured in years; *Gender*, the gender of the largest owner, coded 1 if the largest owner is female and 0 if male; *Managerial Education*, coded 1 if the largest owner has had secondary education and above, otherwise 0*; Managerial experience*, log of the number of years of experience of thelargest owner in the industry sector that the focal firm operates. *Owner-manager*, the position of the respondent in the firm, is coded 1if the respondent is both an owner and manager of the firm and 0 if the respondent is a manager only (employee but not an owner). *Serial entrepreneur*, is coded 1 if the largest owner started more than one firm in the past three years (including the firm if the firm was started in the past three years), and 0 otherwise. This measure is included as a proxy of the risk propensities of the largest owner of the firm.

At the firm level, I control for *Age of firm*, the number of years of operation by the business; *firm size*, log of the total number of employees in the preceding month (month of performance); *industry* is a dummy of 20 categories of industries (Table A2 Appendix A) to which the firm's main product or service could belong. *Combined account* is coded 1, if the business' financial account is not separate from that of the home of the largest owner, and 0 if otherwise. *Combined accoun*t is included as a proxy for the management practices of firms. It is plausible to expect that firms with management practices close to that of formal firms would experience less adjustment costs in the case of formalization and vice versa. Further, good financial management practices such as separating business financial accounts from the financial accounts of the home may be an indicator of business acumen that translates into the performance of a firm. *Funding source* consists of 7 dummies representing different sources of business finance reported by respondents (Table A3 Appendix A) as a main source of finance for the business. Firms that rely on informal sources of finance may have more linkages to the informal economy but may also have access to less finance in terms of the size of financing; hence the funding source may correlate with both willingness to formalize and potential performance of the firm. *Business location* is coded 1, if the firm operated from fixed premises and with a permanent structure, 2 from fixed premises and with temporary structure and 3 without fixed premises. Firms operating from temporary structures or are mobile may find it easier to relocate to avoid being tracked by officials and enforcers of the law.

I then controlled for other factors likely to influence informal firms' willingness to formalize. *Reason unregistered*, controls for dummies of the main reason reported by the respondent as being why the firm is not registered with the national office for business registration. *Reason unregistered* is coded 1 for costs of the registration procedure (information, money and time), 2 for the running costs of being formal (taxes, bribes, and inspections faced by formal firms), 3 for the perception of no benefit for the firm if it formalizes, 4 for other reasons and 5 if the respondent does not know. Descriptive statistics for this measure are presented in Table A4 of Appendix A.

Cost of informality is coded 1 if the firm has to make any informal payment to remain unregistered, 2 if the firm does not make such payments, and 3, if the respondent refuses to answer the question. Firms that make payments to remain informal are more likely to have a high dependence on informality for survival or the achievement of aspirations for which they chose to operate informally. Hence, such a firm may have less willingness to formalize. On the other hand, the attention of firms that make payments to remain informal may become increasingly drawn to such costs of informality when they begin to experience performance improvements that attract higher informal payments or if they experience an accumulation of these informal costs over time (Nguyen et al., 2014). It is plausible that such informal payments to remain unregistered increase with firms size; hence, performance improvements that translate to visible improvement in firm size means that such firms are likely to become more willing to formalize to avoid the increasing cost of informality.

Previously formal: Firms that started up formal or were formal at a period in the past are likely to have become informal because of falling firm performance, bad experiences with formality, or because they are deliberately avoiding regulation and or taxation for increased profits (Ulyssea, 2018). Such conditions are likely to affect firms' willingness to formalize.

Finally, it is possible that some informal firms are started by entrepreneurs who intend to formalize their firms in the future. Such firms are likely to be started by growth-oriented entrepreneurs who start up informally to overcome alternative sources of liability of newness imposed by the lack of formal institutional support (Williams et al., 2017). Informality may also be used as means to test the viability of entrepreneurial opportunities as entrepreneurs maneuver toward higher value-creating ventures (Khavul et al., 2009; Nelson & De Bruijn, 2005). It is plausible to assume that such growth-oriented entrepreneurs are more likely to have greater potential for performance above aspiration level as well as willingness to formalize their firms owing to the existence of such intentions at start-up. I, however, do not observe such predisposition to formalization from start-up in the data. To address this, I control for three additional variables that conform to the characteristics of such firms. Firstly, I control for the employment status of the largest owner at the start-up of the focal firm. This is to control for whether the firm was started out of necessity or not. Firms, started out of necessity are usually started as a survival strategy, i.e., serving the need for personal survival or provision for the family (de Soto, 1989; Godfrey, 2011; Kistruck et al., 2015). Given that such informal firms are started because business owners lack other sources of income or employment (Garcia-Lorenzo et al., 2018; Hart, 1973; Thieme, 2018) I control for *employment at start-up*, which is coded 1 if the largest owner was employed in the same activity as the current business, 2 if s/he was employed in a different activity, 3 if s/he was self-employed in a different type of activity, 4 if s/he self-employed in the same type of activity and 5 if s/he was unemployed prior to the start of the business. Unemployment prior to starting a business is usually used as an indicator of necessity entrepreneurship (Dencker et al., 2009; Nikiforou, Dencker, & Gruber, 2019). Secondly, firms that are started as a result of opportunity identification and are started with the intention to become formal later are likely to look more closely like formal firms relative to other informal firms (Grimm et al., 2012; Nguyen et al., 2014). Hence, I expect that such firms would have a larger size at start-up relative to other informal firms. Thus I control for *size at start-up*; log of the number of full-time employees the firm had at start up. Thirdly, I expect firms that started with the intention to formalize in the future and still have those intentions to have a higher perception of the benefits than formalization at the time of the decision-making. I, therefore, control for *formalization benefit,* the averaged perception of the benefit of formalization on four dimensions; better access to finance, better access to raw materials, less bribes to pay, and better opportunities with formal firms.

4.4 RESULTS

Descriptive statistics

Tables 4.1 and 4.2 present the descriptive statistics and the correlation matrix for the variables, respectively, while Table 4.3 presents the distribution of willingness to formalize relative to performance equal to, below, and above historical performance levels.

Table 4.1: Descriptive Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Willingness to formalize	1898	0.49	0.50	0.00	1.00
Age	1898	38.77	11.16	17.00	85.00
Gender	1898	0.42	0.49	0.00	1.00
Managerial education	1898	0.66	0.47	0.00	1.00
Managerial experience	1898	2.06	0.76	0.00	4.26
Serial entrepreneur	1898	0.70	0.76	0.00	10.00
Owner-manager	1898	0.97	0.17	0.00	1.00
Formalization benefit	1898	1.63	1.25	0.00	4.00
Industry	1898	12.57	8.42	1.00	30.00
Firm size	1898	0.56	0.67	0.00	3.56
Age of firm	1898	1.83	0.84	0.00	4.88
Sales[8]	1898	887.49	10636.62	0.10	326441.78
Informal payment	1898	1.91	0.38	1.00	3.00
Previously formal	1898	0.03	0.16	0.00	1.00
Combined account	1898	0.56	0.50	0.00	1.00
Reason unregistered	1898	1.93	1.05	1.00	5.00
Funding source	1898	1.51	1.30	1.00	7.00
Business location	1898	1.73	0.74	1.00	3.00
Start-up employment	1898	2.90	1.64	1.00	6.00
Size at start-up	1898	0.44	0.61	0.00	3.56
City size	1898	1.99	0.98	1.00	5.00
Year	1898	2011.67	1.44	2010.00	2013.00
Performance discrepancy	1898	1.50	0.72	1.00	3.00
Family embeddedness	1898	0.79	0.29	0.05	1.00
Local embeddedness	1898	27.73	15.69	1.00	80.00

In general, the informal firms involved in the study across the 10 countries are micro to small-scale firms with an average of 2.33 employees and a maximum of 35 employees. Table 4.2 indicates that having a female as the largest owner, combining business financial accounts with the financial accounts of the home, family embeddedness and local embeddedness are negatively and significantly correlated with willingness to formalize. Correlation coefficients are generally low, and mean-variance inflation factors are well below the critical value of 10 in all estimated models (Belsley, Kuh & Welsh, 1980). On the other hand, having a largest owner with education above secondary school level, managerial experience, high perceived value of formalization, increasing firm size, and being previously formal are significantly and positively correlated with being willing to formalize.

[8] Given the wide distribution of the sales we run robustness checks a subsample of firms with sales between $10 and $9000. The results remained robust at same level of significance for performance below and above aspiration. The $9000 limit is based on data collection in Ghana for a different but related study.

Table 4.2: Correlation among variables in the study

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) Willingness to formalize	1.00															
(2) Age	-0.01	1.00														
(3) Gender	-0.11**	0.02	1.00													
(4) Managerial education	0.09**	-0.04	-0.08**	1.00												
(5) Managerial experience	0.07**	0.44**	-0.16**	0.00	1.00											
(6) Serial entrepreneur	0.00	-0.08**	-0.05**	-0.03	-0.15**	1.00										
(7) Owner-manger	-0.03	-0.01	0.01	0.02	0.05**	-0.03	1.00									
(8) Formalization benefit	0.39**	-0.05**	-0.05**	0.02	0.06**	0.05**	-0.03	1.00								
(9) Firm size	0.16**	0.07**	-0.19**	0.11**	0.14**	0.09**	-0.08**	0.03	1.00							
(10) Age of firm	-0.01	0.41**	-0.13**	-0.04	0.77**	-0.14**	0.01	-0.01	0.09**	1.00						
(11) Sales	0.04	0.03	-0.01	0.04	0.02	0.02	0.01	0.00	0.14**	0.02	1.00					
(12) Previously formal	0.07**	0.06**	-0.01	0.06**	0.04	0.07**	-0.03	0.07**	0.05**	0.06**	0.00	1.00				
(13) Combined account	-0.09**	-0.06**	0.08**	-0.18**	-0.04	0.02	0.03	-0.03	-0.21**	0.00	-0.05**	-0.06**	1.00			
(14) Size at start-up	0.13**	0.06**	-0.17**	0.12**	0.12**	0.08**	-0.08**	0.02	0.68**	0.07**	0.15**	0.08**	-0.16**	1.00		
(15) Family embeddedness	-0.15**	0.00	0.22**	-0.11**	-0.12**	-0.07**	0.04	0.00	-0.81**	-0.06**	-0.08**	-0.03	0.17**	-0.52**	1.00	
(16) Local embeddedness	-0.05**	0.53**	0.00	0.06**	0.33**	-0.14**	0.00	-0.13**	0.07**	0.30**	0.04	0.02	-0.13**	0.10**	-0.05**	1.00

** $p<0.05$

From Table 4.3, the majority of the firms have performance equal to aspiration level (63.35%), while 23.14 % and 13.60 % have performance below and above aspiration level, respectively. Table 4.3 also indicates that 54.36% of firms performing below aspiration level are willing to formalize compared to 48.26% of firms performing above aspiration level and 47.13% for firms performing equal to aspiration level. Table 4.3 reports pairwise correlations between the main variables used in the model.

Table 4.3: Tabulation of performance discrepancy by willingness to formalize

Performance discrepancy	Willingness to formalize		
	No	Yes	Total
Equal to aspiration	636	567	1203
Below aspiration	199	237	436
Above aspiration	134	125	259
Total	969	929	1898

Multivariate analyses

The dependent variable, *formalize*, has two categories, hence, I estimated a logit regression models to test the studies hypotheses. The Results of the logit regression models (with standard errors country level) testing the various hypotheses are presented in Table 4.4. Model 1 in Table 4.4 includes all the control measures, and model 2 adds the focal performance discrepancy variable dummies (with performance equal to aspiration as the reference category). Model 3 adds the moderation variables family embeddedness and local embeddedness. Model 4 and 5 add the interactions between performance discrepancy and family embeddedness and between performance discrepancy and local embeddedness, respectively. Model 6 presents the full model, including all the interactions.

Results

Hypothesis 1a proposed that firms with performance below aspiration level will be risk-seeking and more willing to formalize. Results from Model 3 of Table 4.4 show support for this hypothesis. The estimated coefficient of 0.21 (p= 0.003) indicates that the logarithm of the odds ratio of being willing to formalize for firms with performance below aspiration is 21% higher compared to firms with performance equal to aspiration level. In terms of marginal effects, firms with performance below aspiration have an average predicted probability of 0.52 (p= 0.000) compared to 0.49 (p= 0.000) for firms with performance equal to aspiration. Hypothesis 1b proposed that firms with performance above aspiration level will be less risk-averse and less willing to formalize. Results from Model 3 of Table 4.4 show an estimated coefficient of - 0.21 (p= 0.357). This result indicates that the logarithm of the odds ratio of being willing to formalize for firms with performance above aspiration level is lower than but not significantly different compared to firms with firms experiencing performance equal to aspiration level. I test the difference between the logarithm of the odds ratio of being willing to formalize for firms with performance below aspiration and firms with performance above aspiration level. I find that the two coefficients are significantly different from each other (p = 0.035), indicating that compared to firms with performance above aspiration level, firms with performance below aspiration level are significantly more likely to formalize. In terms of marginal effects, firms with performance above the aspiration level have an average predicted probability of 0.45(p= 0.000).

Table 4.4 Logit regressions with *formalize* as dependent variable

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age	0.00	0.00	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	-0.12	-0.11	-0.11	-0.11	-0.11	-0.11
	(0.08)	(0.08)	(0.09)	(0.09)	(0.08)	(0.09)
Managerial education	0.33	0.32	0.32	0.31	0.32	0.31
	(0.31)	(0.31)	(0.31)	(0.32)	(0.31)	(0.31)
Managerial experience	0.34*	0.33*	0.33*	0.34*	0.34*	0.34*
	(0.19)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
Serial entrepreneur	-0.08	-0.07	-0.07	-0.07	-0.07	-0.07
	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)	(0.10)
Owner-manager	-0.19	-0.16	-0.17	-0.18	-0.19	-0.19
	(0.19)	(0.19)	(0.18)	(0.17)	(0.19)	(0.18)
Formalization benefit	0.70***	0.71***	0.71***	0.71***	0.70***	0.71***
	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Firm size	0.47***	0.47***	0.33*	0.31*	0.32*	0.31*
	(0.10)	(0.10)	(0.18)	(0.18)	(0.18)	(0.18)
Age of firm	-0.29**	-0.29***	-0.28***	-0.29**	-0.29***	-0.29**
	(0.12)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Sales	0.00*	0.00*	0.00*	0.00	0.00*	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Previously formal	0.58	0.57	0.57	0.57	0.58	0.58
	(0.48)	(0.50)	(0.50)	(0.51)	(0.51)	(0.52)
Combined account	-0.31***	-0.32***	-0.32***	-0.31***	-0.33***	-0.32***
	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)	(0.11)
Size at start-up	-0.00	-0.00	0.02	0.04	0.03	0.04
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Performance discrepancy						
Below aspiration		0.22***	0.22***	0.38	0.03	0.20
		(0.07)	(0.07)	(0.53)	(0.22)	(0.45)
Above aspiration		-0.21	-0.21	1.16**	-0.47**	0.93
		(0.22)	(0.22)	(0.52)	(0.24)	(0.62)

Family embeddedness			-0.36	-0.13	-0.38	-0.15
			(0.26)	(0.33)	(0.26)	(0.33)
Below aspiration X Family embeddedness				-0.20		-0.18
				(0.68)		(0.68)
				(0.00)		(0.00)
Above aspiration X Family embeddedness				-1.72**		-1.68**
				(0.72)		(0.74)
Local embeddedness			-0.00	-0.00	-0.01	-0.01
			(0.00)	(0.00)	(0.00)	(0.00)
Below aspiration X Local embeddedness					0.01	0.01
					(0.01)	(0.01)
Above aspiration X Local embeddedness					0.01*	0.01
					(0.01)	(0.01)
Constant	-1.04	-1.11	-0.74	-0.93	-0.61	-0.81
	(0.72)	(0.76)	(0.91)	(0.87)	(0.92)	(0.89)
Observations	1,898	1,898	1,898	1,898	1,898	1,898
Start-employment Dummy	YES	YES	YES	YES	YES	YES
Industry Dummy	YES	YES	YES	YES	YES	YES
Funding source Dummy	YES	YES	YES	YES	YES	YES
Business location Dummy	YES	YES	YES	YES	YES	YES
Reason unregistered Dummy	YES	YES	YES	YES	YES	YES
Cost of informality Dummy	YES	YES	YES	YES	YES	YES
Country Dummy	YES	YES	YES	YES	YES	YES
City size Dummy	YES	YES	YES	YES	YES	YES
Year Dummy	YES	YES	YES	YES	YES	YES
Pseudo R2	0.241	0.243	0.244	0.247	0.244	0.247

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 4.1 presents a diagrammatic representation of the relative likelihood of being willing to formalize among the three categories of firms. Figure 4.1 shows that the likelihood of being willing to formalize drops consistently as I move from firms performing below aspiration to firms performing equal to aspiration level and then to firms performing above aspiration. Put together, the results of the preceding analyses support hypotheses 1a and 1b.

Turning to the family embeddedness specific effects, Hypothesis 2a and 2b proposed that family embeddedness will negatively moderate the level of risk that informal firms performing below and above aspiration level will be willing to assume and hence their willingness to formalize. Thus, in the face of increasing family embeddedness, informal firms with performance below aspiration level will become less risk-seeking relative to the baseline *H1a* and hence less willing to formalize. On the other hand, informal firms with performance above aspiration level will become more risk-averse than the baseline expectation in *H1b* and hence, even less willing to formalize

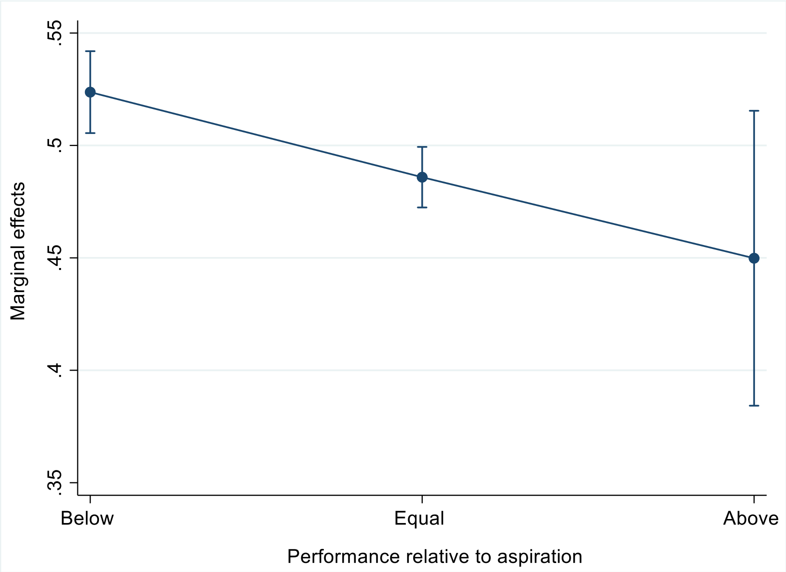

Figure 4.1: Marginal effects of firms at different levels of performance relative to aspiration level

Though not hypothesized, Table 4.4 model 4 indicates that family embeddedness is negatively related to informal firms' willingness to formalize; however, the effect is insignificant (b= -0.36, p= 0.159). In terms of the hypothesized effects, model 4 in Table 4.4 shows a significant interaction between performance discrepancy and family embeddedness but only for performance above aspiration (b= -1.72, p= 0.018) relative to performance equal to aspiration. Results indicate that family embeddedness significantly and positively moderates the risk-aversion of informal firms with performance above aspiration level towards willingness to formalize. This result provides support for hypothesis 2b. To present a clearer picture of how family embeddedness moderates the relationship between performance discrepancy and willingness to formalize, the marginal effects of the three performance discrepancy variables were calculated at an interval of 0.001 for figures falling between 0 and 1. Figure 4.2 presents predictive margins for these variables at the various levels. The results, however, do not provide support for hypothesis 2a. Although the coefficient of the interaction effect is negative, it is not significant (b= - 0.20, p= 0.773).

Hypotheses 3a and 3b investigate the moderating effect of local embeddedness on the relationship between performance discrepancy and informal firms' willingness to formalize. Specifically, Hypothesis 3a and 3b propose that local embeddedness will negatively and positively moderate the risk-seeking and risk-aversion of informal firms performing below and above aspiration level, respectively.

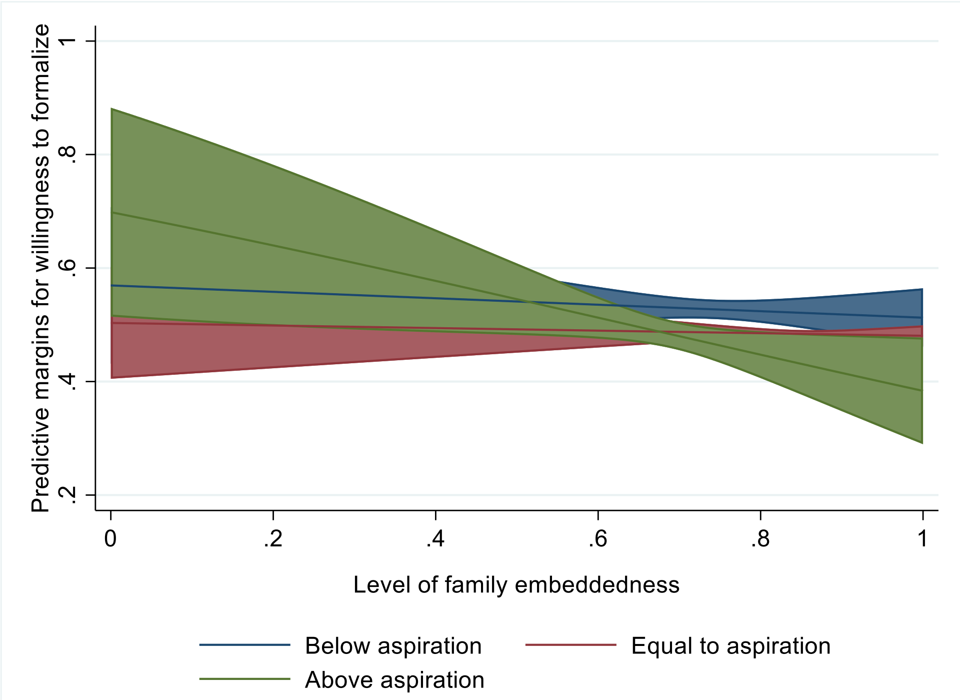

Figure 4.2: Predictive margins for willingness to formalize at different level of family embeddedness, with 95% CIs

Model 5 in Table 4.4. shows some interaction between performance discrepancy and local embeddedness but only for performance above aspiration level relative to performance equal to aspiration level. However, the moderating effect is opposite to hypothesis H3b and only significant at the 10% level of significance (b= 0.01, p= 0.097). Hence, relative to firms performing equal to aspiration level, local embeddedness marginally reduces the risk aversion towards the prospect of formalization for firms performing above aspiration level. To present a picture of how local embeddedness moderates the relationship between performance discrepancy and willingness to formalize, the marginal effects of the three performance discrepancy variables were calculated at an interval of 0.01 for figures falling between 0 and 80. Figure 4.3 presents predictive margins for these variables at the various levels.

Supplementary analyses and robustness checks of baseline effect

In the next step, I run a supplementary test of the search and risk mechanism of BTOF in the data by testing the extended version of the theory. Based on the behavioral theory of the firm (BTOF), I argued that formalization is a risky decision because it involves fundamental changes to the operations of an informal firm that can affect the firm's chances of survival. However, firms performing below aspiration are driven by problemistic search to become more risk-seeking to solve the underperformance problem. Hence, firms performing below aspiration will become willing to formalize while firms performing above aspiration level will use the positive performance as a reason not to formalize.

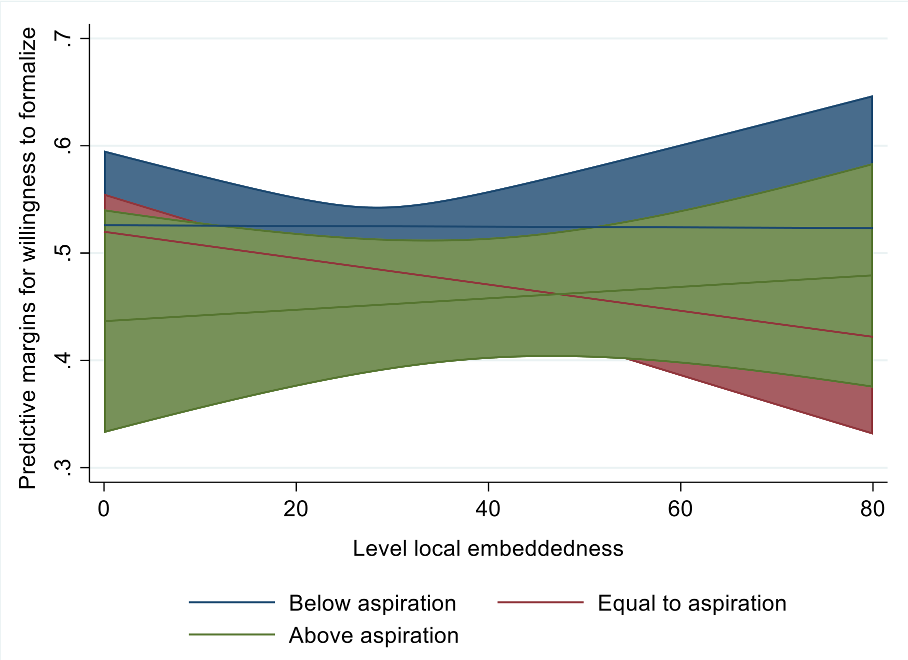

Figure 4.3 : Predictive margins for willingness to formalize at different level of local embeddedness, with 95% CIs

Extensions of BTOF argue that firms performing below aspiration level but at a level close to firm failure will become risk-averse (as opposed to firms performing below aspiration but above firm failure). They also argue that firms performing above aspiration level but at a level that leads to resource slack will become risk-seeking contrary to firms performing above aspiration but not at the level of slack (Audia & Greve, 2006; Greve, 2003a; March & Shapira, 1987). I test the extended BTOF using an alternative specification of the independent variable, performance discrepancy. The alternative specification, like the main specification, also uses sales performance but captures firms with performance below aspiration but also close to firm failure (close to failure), firms with performance below aspiration but far from firm failure (below without failure), firms with performance above aspiration but without slack (above without slack) and firms with performance above aspiration and also to the point of slack (above with slack). I capture "close to failure" firms as informal firms with sales performance below historical sales performance levels of the focal firm and also below the median sales performance of other informal firms in the same industry and country. A firm that is performing poorly on multiple measures is easily representative of a firm close to firm failure (Gaba & Greve, 2019). By comparing with firms in the same industry and country, I compare the focal firms with other firms facing similar market and macroeconomic conditions. “below without failure” firms have sales performance below historical sales performance of the focal firm but above the median sales performance of other informal firms in the same industry and country. “above without slack” firms have sales performance above historical sales performance of the focal firm but below the median sales performance of other informal firms in the same industry and country. To capture “above with slack” firms, I coded for informal firms with sales performance above historical sales performance levels of the focal firm and above the median sales performance of other informal firms operating in the same industry and country. Finally, I also coded the reference category “equal to aspiration” as firms meeting their aspiration level whether or not they are performing above or below the industry median in the country. The distribution of firms across the various categories is presented in Table 4.5.

Table 4.5: Distribution of firms across various categories of performance discrepancy

	Freq.	Percent	Cum.
Close to failure	245	12.91	12.91
Below without failure	191	10.06	22.97
Equal to aspiration	1203	63.38	86.35
Above without slack	111	5.85	92.20
Above with slack	148	7.80	100.00
Total	1898	100.00	

Table 4.6 presents the logit models using the alternative specification of the performance discrepancy variable. In general, results from model 3 in Table 4.6 support the search and risk mechanism behavioral theory of the firm mechanism. The magnitude and signs of the coefficients are generally in line with expectations.

Table 4.6: Logit models using the alternative specification of the performance discrepancy variable

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age	0.00	0.00	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	-0.12	-0.11	-0.10	-0.10	-0.10	-0.11
	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)	(0.09)
Managerial education	0.33	0.30	0.31	0.30	0.30	0.29

	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)
Managerial experience	0.34*	0.33*	0.33*	0.34*	0.34*	0.34*
	(0.19)	(0.17)	(0.17)	(0.18)	(0.18)	(0.18)
Serial entrepreneur	-0.08	-0.07	-0.08	-0.07	-0.08	-0.08
	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)	(0.11)
Owner-manager	-0.19	-0.20	-0.21	-0.21	-0.22	-0.22
	(0.19)	(0.20)	(0.19)	(0.18)	(0.19)	(0.18)
Formalization benefit	0.70***	0.71***	0.71***	0.71***	0.71***	0.71***
	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Firm size	0.47***	0.45***	0.31*	0.29	0.32*	0.30*
	(0.10)	(0.10)	(0.18)	(0.18)	(0.17)	(0.18)
Age of firm	-0.29**	-0.29**	-0.28**	-0.29**	-0.29**	-0.29**
	(0.12)	(0.11)	(0.11)	(0.12)	(0.11)	(0.12)
Sales	0.00*	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Previously formal	0.58	0.53	0.53	0.53	0.54	0.54
	(0.48)	(0.53)	(0.53)	(0.52)	(0.54)	(0.54)
Combined account	-0.31***	-0.31***	-0.32***	-0.31***	-0.32***	-0.32***
	(0.10)	(0.10)	(0.11)	(0.11)	(0.11)	(0.11)
Size at start-up	-0.00	0.00	0.02	0.04	0.03	0.05
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Close to failure		0.05	0.04	0.03	0.06	0.05
		(0.18)	(0.17)	(0.68)	(0.27)	(0.66)
Below without failure		0.46***	0.46***	0.66	0.00	0.25
		(0.15)	(0.15)	(0.44)	(0.19)	(0.44)
Above without slack		-0.30	-0.31	0.69	-0.65***	0.34
		(0.21)	(0.21)	(0.78)	(0.25)	(0.71)
Above with slack		-0.15	-0.13	1.43***	-0.33	1.38**
		(0.30)	(0.30)	(0.55)	(0.43)	(0.63)
Family embeddedness			-0.38	-0.16	-0.39	-0.16
			(0.26)	(0.34)	(0.26)	(0.34)
Close to failure X Family embeddedness				0.02		0.01
				(0.86)		(0.85)
Below without failure X Family embeddedness				-0.25		-0.28
				(0.68)		(0.69)
Above without slack X Family embeddedness				-1.23		-1.21
				(0.92)		(0.91)
Above with slack X Family embeddedness				-2.01**		-2.00**
				(0.86)		(0.86)
Local embeddedness			-0.00	-0.00	-0.01	-0.01
			(0.00)	(0.00)	(0.00)	(0.00)
Close to failure X Local embeddedness					-0.00	-0.00
					(0.01)	(0.01)
Below without failure X Local embeddedness					0.02*	0.02*
					(0.01)	(0.01)
Above without slack X Local embeddedness					0.01	0.01
					(0.01)	(0.01)
Above with slack X Local embeddedness					0.01	0.00
					(0.01)	(0.01)
Constant	-1.04	-1.08	-0.69	-0.88	-0.56	-0.78
	(0.72)	(0.77)	(0.91)	(0.87)	(0.92)	(0.88)
Observations	1,898	1,898	1,898	1,898	1,898	1,898

Start-employment Dummy	YES	YES	YES	YES	YES	YES
Industry Dummy	YES	YES	YES	YES	YES	YES
Funding source Dummy	YES	YES	YES	YES	YES	YES
Business location Dummy	YES	YES	YES	YES	YES	YES
Reason unregistered Dummy	YES	YES	YES	YES	YES	YES
Cost of informality Dummy	YES	YES	YES	YES	YES	YES
Country Dummy	YES	YES	YES	YES	YES	YES
City size Dummy	YES	YES	YES	YES	YES	YES
Year Dummy	YES	YES	YES	YES	YES	YES
Pseudo R2	0.241	0.244	0.245	0.248	0.246	0.249

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

However, only the coefficient of "below without failure" firms is significantly different from firms performing equal to aspiration level. Given the low sample sizes of the categories, especially that of firms performing above aspiration with or without slack, it is possible that the significance levels of the coefficients are affected. To give a clearer picture of the results, however, Figure 4.3 plots the marginal effects of the various categories. In line with expectations, Figure 4.3 indicates that the predicted probability of "below without failure" (0.57, p=0.00) is higher than "close to failure" (0.49, p=0.00) while the predicted probability of "above with slack" (0.46, p=0.00) is higher than that of "above without" slack (0.43, p=0.00). The results of the robustness check support the search and risk mechanism of the BTOF. However, the relatively large standard errors and the coefficients due to the relatively small sample size of some of the categories limit the ability to interpret the results.

In the next step, I test the assumption that the perceived performance-enhancing benefits of formalization drive the higher willingness to formalize among firms performing below aspiration level. To test this mechanism, I divide the sample into two roughly equal subsamples based on whether decision-makers of the firms had above-median perceptions of the benefits of formalization or not. I then run independent logit regressions using each sample. The expectation is that firms whose decision-makers have above-median perceptions of the benefits of formalization for their firm will exhibit stronger willingness to formalize when their firms are performing below aspiration than firms with below-median perceptions of the value of formalization.

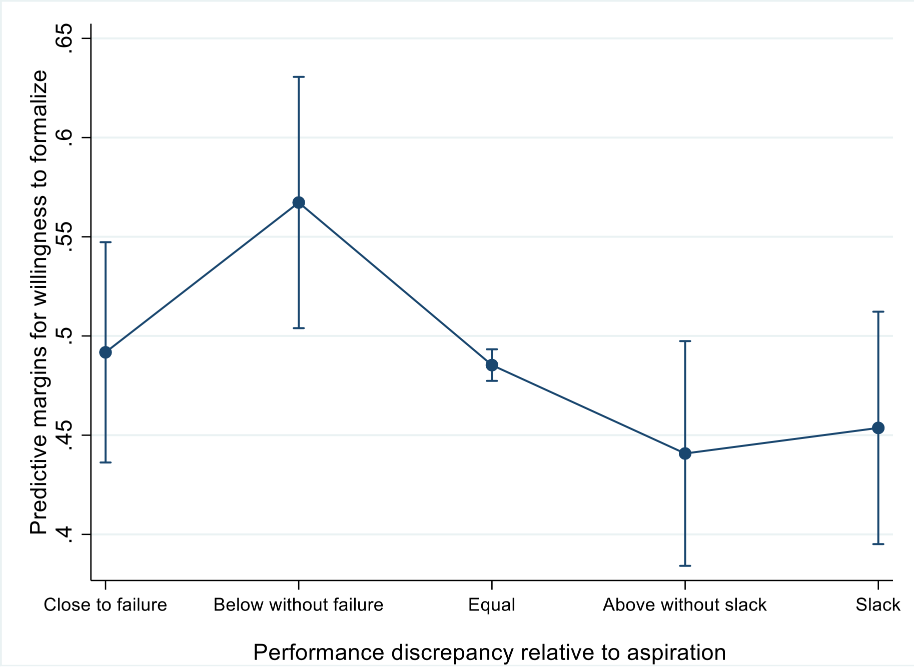

Figure 4.3: Marginal effects of firms at different levels of performance relative to aspiration level

Model 3 and 4 in Table 4.7 present results for above-median and below-median subsamples, respectively. The results show that the effect of a firm's performance below aspiration remained robust with a slightly higher coefficient (b= 0.23, p= 0.081) and a higher marginal effect of 0.68 (p=0.00) in the subsample with above-median perceptions of the benefits of formalization. This is in comparison to results from the full sample. In the subsample with below-median perceptions of the benefits of formalization, the effect of the performance below aspiration is very low and also insignificantly (b= 0.04, p= 0.521) with different from firms with performance equal to aspiration level. The coefficient is also lower than the coefficient in the above-median subsample. The marginal effect of performance below aspiration level on willingness to formalize is also lower at 0.33 (p=0.00) in the below-median subsample. The sub-sample analyses thus support the assumption that the higher willingness to formalize on the part of firms with performance below aspiration is driven by the perceived benefits of formalization.

Table 4.7: Logit models for comparing above and below-median perceived formalization benefit subsamples to the main model.

VARIABLES	(Model 1) Main model	(Model 2) Above-median Model	(Model 3) Below Median Model
Age	0.00	0.00	0.01
	(0.01)	(0.01)	(0.01)
Gender	-0.11	-0.04	-0.23
	(0.09)	(0.21)	(0.14)
Managerial education	0.32	0.14	0.58**
	(0.31)	(0.33)	(0.29)
Managerial experience	0.33*	0.23	0.56**
	(0.18)	(0.20)	(0.24)
Serial entrepreneur	-0.07	-0.03	0.01
	(0.10)	(0.13)	(0.15)
Owner-manager	-0.17	-0.10	-0.15
	(0.18)	(0.41)	(0.31)
Formalization benefit	0.71***	0.66***	1.85***
	(0.09)	(0.06)	(0.23)
Firm size	0.33*	0.35**	0.28
	(0.18)	(0.16)	(0.23)
Age of firm	-0.28***	-0.22*	-0.38
	(0.11)	(0.11)	(0.31)
Sales	0.00*	0.00	0.00
	(0.00)	(0.00)	(0.00)
Previously formal	0.57	0.43	0.94*
	(0.50)	(0.51)	(0.52)
Combined account	-0.32***	-0.38***	-0.59***
	(0.10)	(0.13)	(0.20)
Size at start-up	0.02	-0.18*	0.15
	(0.11)	(0.11)	(0.19)
Below aspiration	0.22***	0.23*	0.04
	(0.07)	(0.13)	(0.24)
Above aspiration	-0.21	-0.42	-0.01
	(0.22)	(0.29)	(0.19)
Family embeddedness	-0.36	-0.25	-0.76
	(0.26)	(0.28)	(0.49)
Local embeddedness	-0.00	-0.00	-0.01**
	(0.00)	(0.01)	(0.00)
Constant	-0.74	-0.54	-1.10
	(0.91)	(0.99)	(2.07)
Observations	1,898	982	897
Start-employment Dummy	YES	YES	YES
Industry Dummy	YES	YES	YES
Funding source Dummy	YES	YES	YES
Business location Dummy	YES	YES	YES

Reason unregistered Dummy	YES	YES	YES
Cost of informality Dummy	YES	YES	YES
Country Dummy	YES	YES	YES
City size Dummy	YES	YES	YES
Year Dummy	YES	YES	YES
Pseudo R2	0.244	0.191	0.302

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Robustness checks for moderating effects

Robustness checks were carried out using alternative measures and specifications of the moderator variables. Table B1 in Appendix B presents results for robustness checks using alternative measures of family embeddedness. I used three alternative measures of the *Family embeddedness* variable, these include *Family employed*, *High family embeddedness* and *Deep family embeddedness. Family employed* is the raw value of the number of family members of the largest owner employed in the business. The measure for *High family embeddedness* is achieved by splitting the main *Family embeddedness* measure into high and low based on whether the estimate is above or below the mean. Since over 50% of the sample is made up of self-employed owners (thus, the largest owner is the only employee), the mean provided a better point to split the sample into two rather than the median). *High family embeddedness* is coded 1 if the estimate is above the mean and 0 otherwise. Finally, a key feature that distinguishes family-embedded informal firms from their formal counterparts is their ability to merge the financial accounts of both the family and the business. To account for this unique feature, the third alternative measure, *Deep family embeddedness,* is coded as 1 (low) if the informal firm is codded as low for *High famiy embeddedness* and if the family and business financial accounts are separated. *Deep family embeddedness* is coded as 2 (medium) if the informal firm is coded as high for *High family embeddedness*, but the family and business financial accounts are separated or vice versa. *Deep family embeddedness* is finally coded as 3 (high) if the informal firm is coded as high for *High family embeddedness* in the business and the family and business financial accounts are also merged. The results for the main effect of performance discrepancy and the moderation effects remain qualitatively the same across all the three alternative measures of family embeddedness.

I also used three alternative measures of the *Local embeddedness* variable, and these include *High local embeddedness, Deep local embeddedness,* and *Life in city*. Table B2 of Appendix B presents results for robustness checks using alternative measures of local embeddedness. The measure for *High local embeddedness* is achieved by splitting the main *Local* *embeddedness* measure into high and low based on whether the estimate is above or below the mean (this was mainly done to mirror the *High family embeddedness* measure). *High local embeddedness* is coded 1 if the estimate is above the mean and 0 otherwise. On the other hand, *Deep local embeddedness* is achieved by splitting the main *Local embeddedness* measure into high and low based on whether the estimate is above or below the median. *Deep local embeddedness* is coded 1 if the estimate is above the median and 0 otherwise. Finally, *City embeddedness* is calculated as the ratio of the number of years the largest owner has lived in the city where the business is located to the total age of the largest owner. The results for the main effect of performance discrepancy and the moderation effects of local embeddedness also remain qualitatively the same across all the three alternative measures of local embeddedness.

4.5 DISCUSSION

Despite the social embeddedness of informal firms, studies investigating the drivers of formalization have generally assumed a rational decision-making process that ignores the social implications of formalization and focuses on its financial costs vis-a-vis benefits. These studies have found that informal firms are more willing to formalize in response to positive performance (De Castro et al., 2014; Ulyssea, 2018; Nguyen, Verreynne, & Steen, 2014; Perry, Maloney, Arias, Fajnzylber, & Saavedra-chanduvi, 2010). The studies indicate that firms become more willing to formalize if positive performance leads to excess resources to cover the transaction costs of formalization or if the increased visibility that comes from positive performance increases the concealment costs of being detected by regulatory agencies (De Castro et al., 2014; Gelb et al., 2009; Nguyen et al., 2014). Further, positive performance may signal underlying human and resource capabilities that significantly reduce the adjustment costs related to formalization for such firms (Grimm et al., 2012). Firms with superior human and other resources capabilities can more effectively adjust to the institutional changes that come with formalization. Despite their important contributions, extant studies have generally ignored the role of social embeddedness, a key characteristic of informal firms, in affecting informal firms' decisions to formalize. The result is that current studies have deemphasized the boundedly rational nature of firm decision-making under conditions of social embeddedness to focus on a quasi-rational cost-benefit calculus of formalization. In effect, existing studies have sidelined social implications of formalization for informal firms. A further consequence of cost-benefit approach is that current studies fail to account for situations where informal firms performing below their targets may be driven to be more willing to formalize by a search for performance improvements. This omission in the literature is inconsistent with the widely supported assumption that formalization is superior to being informal with respect to firm performance (Assenova & Sorenson, 2017; Benjamin & Mbaye, 2012; La Porta & Schleifer, 2014).

To augment the extant literature, I draw on the behavioral theory of the firm (BTOF) and social embeddedness literature to propose a mechanism that recognizes the boundedly rational nature of the formalization decision and further emphasizes the social implications of formalization. I first argue that formalization is a risky decision that can lead to firm failure if not successful. As a result, I then posit that informal firms performing below performance levels that they are used to in the informal economy (historical performance level) will be driven by a search for performance improvement to become risk-seeking and thus more willing to formalize. On the contrary, informal firms with performance above historical levels will use it as a good reason to avoid risky change (Baum et al., 2005; Greve, 2003a) and hence, will be less willing to formalize. In addition, I highlight the moderating effect of two important dimensions of social embeddedness in the informal economy, family embeddedness and local embeddedness, on the proposed mechanism. The findings indicate that informal firms performing below their historical performance levels become risk-seeking and more willing to formalize relative to informal firms with performance above their historical performance levels. This finding indicates that informal firms' formalization decision aligns with the bounded rationality that characterizes decision-making under risk as proposed by BTOF. Robustness checks using an extended version of the BTOF also provide support to the current findings.

I also find that the BTOF mechanism is partially moderated by family embeddedness. I find that the risk-aversion of informal firms with performance above aspiration level is positively moderated by the level to which the focal informal firm is embedded within the family of the largest owner. Thus, the willingness of informal firms performing above aspiration level to formalize is further reduced for firms that are highly embedded in the family of the largest owner. Further, contrary to expectations, I find that local embeddedness negatively moderates the risk-aversion of informal firms with performance above aspiration. The effect is, however, marginal and only significant at 10%. These findings indicate that a search for performance improvement due to performance shortfalls in the informal economy can push informal firms to become more willing to formalize. The current findings indicate that a negative discrepancy between a firm's current and historical performance triggers a problemistic search that challenges an informal firm's modus operandi (Baum et al., 2005; Lant & Shapira, 2008) and makes the informal firm more open to the prospect of formalization. Informal firms performing below their historical performance levels will become more attuned to the performance-enhancing advantages of formalization and therefore become more willing to undergo the risky institutional change that comes with formalization (Sutter et al., 2017). This finding is important, in that it brigdges the gap between the existing literature on informal firms' willingness to formalize and the notion that formality is superior to informality in relation to firm-level performance. This study lends credence to this by demonstrating informal firms' desire to formalize in the face of negative performance discrepancy.

Furthermore, the findings of the study highlight how different dimensions of social embeddedness can influence informal firms' willingness to formalize. Informal firms demonstrate different levels of social embeddedness on different dimensions, including embeddedness in family, industry cluster, and ethnic groups (Uzo & Mair, 2014; Webb, Pryor, & Kellermanns, 2015; Webb et al., 2009). The findings indicate that different dimensions of embeddedness matter differently in influencing informal firms' decisions to formalize.

The important findings of this study are, however, not without limitations. Firstly, I realize that willingness of informal firms to formalize may not necessarily translate into the actual formalization of firms, as actual behavior might be different from intentions. However, the data do not allow us to observe the actual formalization of these firms. This challenge in the study could be addressed by a longitudinal study of informal firm performance and formalization decisions. Additionally, I recognize the increasing call to conceptualize formalization on a continuum rather than a dichotomy (Bruton et al., 2012; Godfrey, 2011). Here also, the data only allows us to observe informal firms' willingness to register with the nationally recognized agency for business registration but not with other levels of formalization such as municipality-level registrations. Further, the current data allows us only to observe firms' responses to performance discrepancies that occurred over a single month of operation. Measuring firms' response to such a short period of experience could potentially lead to underestimating the effect of performance discrepancy relative to aspiration level on firm willingness to formalize. Robustness checks that account for firm performance below aspiration level but close to firm failure and performance above aspiration and to the point of slack mimic the effects of "overly" extended periods of performance discrepancy. Hence, the robustness check to some degree addresses the concern of overestimation of the effect of performance discrepancy. Despite the challenges of the current data, the multi-country nature of the data enables us to make valuable contributions to a literature dominated by single country studies owing to the difficulty of collecting data from firms in the informal economy. The study's findings also enable us to make several contributions to the extant literature on BTOF and informal firm formalization.

Firstly, by extending BTOF to informal micro and small-scale firms operating in Latin America and Africa, I extend BTOF to firms that operate outside the dictates of formal regulations and also extend the behavioral theory of community-oriented firms (Smulowitz et al., 2020) to firms that operate in contexts where weak formal institutions are substituted by strong informal institutions. In such contexts, firms' social goals become primary aspirations or aspirations simultaneously as performance goals. This is because firms' existence and competitive advantage frequently depend on legitimacy before stakeholders of informal institutions that govern economic exchange (Webb et al., 2013, 2009). Hence, such firms may be willing to accept significant risk to performance in order to attend to the interests of stakeholders of informal institutions. For example, a family embedded informal firm may attend to the economic or socio-emotional wealth interests of the family at the expense of performance improvement (Gómez-Mejía et al., 2007), while a firm embedded in a local community or ethnic group may assist or even train current or future competitors as a responsibility to the community or ethnic group (Slade Shantz et al., 2018). On the contrary, the study by Smulowitz et al. (2020) focused on community-oriented banks in the United States of America for whom social goals are secondary aspirations that are attended to after achieving performance aspirations.

Additionally, firms that are highly dependent on informal institutions for survival may be embedded in multiple dimensions of the social environment. For example, a firm may be embedded in the family by having a large portion of the employees being family members, embedded locally by relying on localized resources, norms, and values, and at the same time be embedded in an ethnic group by engaging in products or services for which there exists an extensive value chain of closely knitted ethnic group members. Results of the study indicate that these different dimensions of social embeddedness may have different independent effects on the decision-making process in such firms. The latter contribution is particularly important because, despite the recognition of the influence of social embeddedness on informal firms' decision to formalize (De Castro et al., 2014; Thapa Karki et al., 2020), empirical estimation of its effect has been lacking. This study is among the first to provide a quantitative estimation of this effect. Further, by breaking down the social embeddedness of informal firms into family embeddedness and local embeddedness, the study lays a foundation for disentangling the nuanced effects that the different dimensions of social embeddedness can have on informal firms' decision to formalize. I find that social embeddedness affects both the risk propensities that translate negative performance discrepancy into a higher willingness to formalize. What will be interesting to explore in future studies would be if and how multiple dimensions of social embeddedness interact to influence decision making in multiple embedded informal firms.

Moreover, by extending BTOF to understanding informal firm formalization, I highlight an important but neglected mechanism by which informal firms become willing to formalize; the search for performance improvements as a result of performance shortfalls in the informal economy. There is increasing evidence to the effect that firms may be started in the informal economy for reasons other than necessity or inability to afford the initial cost of registration (Slade Shantz et al., 2018; Ulyssea, 2018; Uzo & Mair, 2014; Williams et al., 2017). Thus, it is possible that growth-oriented informal firms or firms that have products or services relevant to formal markets will become more willing to formalize in the face of performance shortfalls in the informal economy. The study provides evidence supporting the assertion that firms will be driven by the performance-enhancing possibilities of the formal economy to become more willing to formalize when faced with performance shortfalls in the informal economy. This finding is in line with the highly supported assertion that formality is superior to informality in relation to productivity and firm performance (Assenova & Sorenson, 2017; Benjamin & Mbaye, 2012; La Porta & Schleifer, 2014). The finding also indicates that the effectiveness of formalization policies could be improved if such policies target 1) firms for which formalization holds clear performance-enhancing potential and 2) firms that are dissatisfied with their performance levels in the informal economy.

Again, the findings of the study provide support to problem signaling as an effective way of drawing attention to the performance advantages of formalization and stimulating informal firms' willingness to formalize. Problem signaling refers to identifying the shortcomings with current institutional practices and thus highlighting them as unsatisfactory (Sutter et al., 2017). Sutter et al., 2017 found in their study that drawing the attention of dairy farmers in the informal economy to the suboptimal performance of their current informal business norms and practices relative to the formal farmers that use the same level of resources was effective in drawing the attention of informal farmers to the performance advantages of formalization. They argued that drawing attention to the negative performance discrepancy was an effective tool in the case of the farmers to motivate institutional change from informality to formality. To this end,Tthe study lends credence to using problem signaling to stimulate formalization among informal firms.

Appendix A

Table A1: Descriptive statistics of countries

Country	Freq.	Percent	Cum.
Argentina (2010)	80	4.21	4.21
Peru (2010)	357	18.81	23.02
Guatamela (2010)	135	7.11	30.14
Ghana (2013)	396	20.86	51.00
Angola (2010)	28	1.48	52.48
Bostwana (2010)	29	1.53	54.00
Democratic Republic of Congo (2010 & 2013)[9]	389	20.50	74.50
Rwanda (2011)	128	6.74	81.24
Mali (2010)	36	1.90	83.14
Kenya (2013)	320	16.86	100.00
Total	1898	100.00	

Table A2: Descriptive statistics of industries

Industry	Freq.	Percent	Cum.
Manufacturing of clothes or shoes	332	17.49	17.49
Manufacturing of baked food (Baker)	53	2.79	20.28
Manufacturing of coffee, sugar, oil, dry fruits and other processed foods	41	2.16	22.44
Manufacturing of handcrafts	45	2.37	24.82
Manufacturing of furniture	120	6.32	31.14
Manufacturing of metal products	103	5.43	36.56
Manufacturing of household items	16	0.84	37.41
Manufacturing of tools and instruments	4	0.21	37.62
Other manufacturing (not included above)	189	9.96	47.58
Selling food or Groceries	241	12.70	60.27
Selling of clothes or household items	85	4.48	64.75
Selling of other goods	98	5.16	69.92
Selling of business/computer/phone services	224	11.80	81.72
Transport Services	7	0.37	82.09
Cleaning and washing services	13	0.68	82.77
Hairdressers and barber shops	133	7.01	89.78
Professional Services	16	0.84	90.62
Repairing services	51	2.69	93.31
Construction	13	0.68	93.99
Other services (not included above)	114	6.01	100.00
Total	1898	100.00	

[9] Democratic Republic of Congo has 89 data points from 2010 and 300 data pints from 2013

Table A3: Descriptive statistics of funding sources mostly used for day-to-day running of the firm

Funding source	Freq.	Percent	Cum.
Internal funds	1573	82.88	82.88
Credit from suppliers or advances from customers	102	5.37	88.25
Moneylenders	28	1.48	89.73
Microfinance institutions	62	3.27	92.99
Banks	54	2.85	95.84
Friends/ Relatives	69	3.64	99.47
Other sources	10	0.53	100.00
Total	1898	100.00	

Table A4: Descriptive statistics of reason why firm is unregistered

Reason unregistered	Freq.	Percent	Cum.
Costs of the registration procedure	830	43.73	43.73
Running costs of being formal	634	33.40	77.13
No benefit for the firm if it formalizes	197	10.38	87.51
Other reasons	212	11.17	98.68
Don't know	25	1.32	100.00
Total	1898	100.00	

Appendix B

Table B1: Logistic regressions using Alternative family embeddedness variables

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age	0.00	0.00	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11
	(0.08)	(0.08)	(0.08)	(0.09)	(0.09)	(0.09)
Managerial education	0.32	0.32	0.32	0.31	0.33	0.32
	(0.31)	(0.31)	(0.31)	(0.32)	(0.31)	(0.31)
Managerial experience	0.34*	0.33*	0.33*	0.34*	0.33*	0.34*
	(0.18)	(0.17)	(0.18)	(0.18)	(0.18)	(0.18)
Serial entrepreneur	-0.07	-0.07	-0.07	-0.07	-0.07	-0.09
	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)	(0.10)
Owner-manager	-0.17	-0.19	-0.17	-0.18	-0.17	-0.18
	(0.18)	(0.17)	(0.18)	(0.16)	(0.18)	(0.16)
Formalization benefit	0.71***	0.71***	0.71***	0.71***	0.71***	0.71***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Firm size	0.52***	0.52***	0.37**	0.36**	0.31**	0.28**
	(0.07)	(0.08)	(0.17)	(0.17)	(0.14)	(0.13)
Age of firm	-0.29***	-0.28***	-0.28***	-0.28**	-0.28***	-0.29***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Sales	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Previously formal	0.57	0.57	0.56	0.56	0.55	0.56
	(0.50)	(0.50)	(0.51)	(0.52)	(0.52)	(0.53)
Combined account	-0.32***	-0.32***	-0.32***	-0.32***		
	(0.10)	(0.10)	(0.10)	(0.11)		
Size at start-up	0.02	0.02	0.02	0.03	0.03	0.06
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Performance discrepancy						
Below aspiration	0.22***	-0.06	0.21***	0.30	0.21***	0.97***
	(0.07)	(0.33)	(0.07)	(0.25)	(0.08)	(0.19)
Above aspiration	-0.20	-0.15	-0.21	0.38	-0.21	0.43*
	(0.22)	(0.19)	(0.23)	(0.25)	(0.22)	(0.24)
High family embeddedness			-0.16	-0.01		
			(0.13)	(0.20)		
Below aspiration X High family embeddedness				-0.13		
				(0.40)		
Above aspiration X High family embeddedness				-0.93**		
				(0.39)		
Local embeddedness	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Family employed	-0.09	-0.13				
	(0.07)	(0.10)				
Below aspiration X Family employed		0.21				
		(0.23)				
Above aspiration X Family employed		-0.03				
		(0.16)				
Deep family embeddedness						
Medium					-0.31***	-0.06
					(0.08)	(0.09)

High					-0.57***	-0.22
					(0.17)	(0.19)
Below aspiration X Medium Deep family embeddedness						-0.92***
						(0.29)
Below aspiration X High Deep family embeddedness						-0.91***
						(0.31)
Above aspiration X Medium Deep family embeddedness						-0.36
						(0.32)
Above aspiration X High Deep family embeddedness						-1.17***
						(0.44)
Constant	-1.01	-0.92	-0.95	-1.04	-0.85	-1.07
	(0.79)	(0.80)	(0.80)	(0.78)	(0.79)	(0.79)
Observations	1,898	1,898	1,898	1,898	1,898	1,898
Start-employment Dummy	YES	YES	YES	YES	YES	YES
Industry Dummy	YES	YES	YES	YES	YES	YES
Funding source Dummy	YES	YES	YES	YES	YES	YES
Business location Dummy	YES	YES	YES	YES	YES	YES
Reason unregistered Dummy	YES	YES	YES	YES	YES	YES
Cost of informality Dummy	YES	YES	YES	YES	YES	YES
Country Dummy	YES	YES	YES	YES	YES	YES
City size Dummy	YES	YES	YES	YES	YES	YES
Year Dummy	YES	YES	YES	YES	YES	YES
Pseudo R2	0.243	0.244	0.243	0.246	0.243	0.248

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table B2: Logistic regressions using Alternative local embeddedness variables

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 3	Model 4
Age	0.00	0.00	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Gender	-0.11	-0.10	-0.10	-0.10	-0.11	-0.11
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Managerial education	0.32	0.33	0.32	0.33	0.32	0.32
	(0.31)	(0.30)	(0.31)	(0.30)	(0.31)	(0.31)
Managerial experience	0.33*	0.33*	0.33*	0.34*	0.33*	0.33*
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
Serial entrepreneur	-0.07	-0.07	-0.07	-0.08	-0.07	-0.07
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Owner-manager	-0.17	-0.16	-0.18	-0.17	-0.17	-0.17
	(0.18)	(0.18)	(0.17)	(0.18)	(0.18)	(0.18)
Formalization benefit	0.71***	0.71***	0.71***	0.71***	0.71***	0.71***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Firm size	0.34*	0.32*	0.33*	0.32*	0.34*	0.33*
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.17)
Age of firm	-	-	-	-	-	-
	0.29***	0.28***	0.29***	0.29***	0.29***	0.28***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Sales	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*

	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Previously formal	0.57	0.57	0.57	0.57	0.57	0.57
	(0.49)	(0.50)	(0.50)	(0.51)	(0.50)	(0.50)
Combined account	-	-	-	-	-	-
	0.32***	0.32***	0.32***	0.32***	0.32***	0.32***
	(0.10)	(0.09)	(0.10)	(0.09)	(0.10)	(0.10)
Size at start-up	0.02	0.02	0.02	0.02	0.02	0.02
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Performance discrepancy						
Below aspiration	0.22***	0.36**	0.22***	0.30*	0.22***	0.42
	(0.08)	(0.15)	(0.08)	(0.16)	(0.07)	(0.28)
Above aspiration	-0.21	-0.28	-0.20	-0.27	-0.21	-0.45
	(0.22)	(0.25)	(0.22)	(0.27)	(0.22)	(0.40)
Deep local embeddedness	-0.10	-0.05				
	(0.15)	(0.17)				
Below aspiration X Deep local embeddedness		-0.30				
		(0.23)				
Above aspiration X Deep local embeddedness		0.14				
		(0.26)				
Family embeddedness	-0.36	-0.37	-0.38	-0.38	-0.36	-0.35
	(0.25)	(0.26)	(0.25)	(0.26)	(0.25)	(0.26)
High local embeddedness			-0.14	-0.12		
			(0.12)	(0.15)		
Below aspiration X High local embeddedness				-0.17		
				(0.28)		
Above aspiration X High local embeddedness				0.13		
				(0.29)		
City embeddedness					-0.08	-0.06
					(0.19)	(0.22)
Below aspiration X City embeddedness						-0.30
						(0.34)
Above aspiration X City embeddedness						0.35
						(0.46)
Constant	-0.75	-0.78	-0.75	-0.76	-0.70	-0.70
	(0.90)	(0.89)	(0.91)	(0.89)	(0.83)	(0.84)
Observations	1,898	1,898	1,898	1,898	1,898	1,898
Start-employment Dummy	YES	YES	YES	YES	YES	YES
Industry Dummy	YES	YES	YES	YES	YES	YES
Funding source Dummy	YES	YES	YES	YES	YES	YES
Business location Dummy	YES	YES	YES	YES	YES	YES
Reason unregistered Dummy	YES	YES	YES	YES	YES	YES
Cost of informality Dummy	YES	YES	YES	YES	YES	YES
Country Dummy	YES	YES	YES	YES	YES	YES
City size Dummy	YES	YES	YES	YES	YES	YES
Year Dummy	YES	YES	YES	YES	YES	YES
Pseudo R2	0.243	0.244	0.244	0.244	0.243	0.244

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Chapter 5

CONCLUSION

5.0 Summary

"The popularity of the Real Book meant that lots of people weren't getting paid for their work. But in the mid-2000s, music executive Jeff Schroedl and the publisher Hal Leonard decided, if you can't beat 'em, join 'em. They went through the Real Book page by page, secured the rights to almost every song, and published a completely legal version…When Hal Leonard finally published the legal version of the Real Book in 2004, it was great news if you were a composer with a song in there. You'd finally be getting royalties from the sale of the most popular jazz fake book of all time. But that didn't totally solve the intellectual property problems with the Real Book. While the legalization of the Real Book did resolve most of its flagrant copyright violations, it didn't clear up authorship disputes that go back to the early days of jazz. Many jazz songs arise out of collective tinkering and improvising in jam sessions. It's sometimes quite hard to say who exactly wrote a given song, and power dynamics often impacted whose name actually got listed as an official songwriter. And so there are likely many musicians whose names will never appear on the songs they helped write, even if those songs appear in the legal Real Book." (99% Invisible, 2021).

Spurred on by the limited success of formalization interventions, this thesis proposes and examines a boundedly rational perspective of the formalization decision. Guided by the question - how does the bounded rationality of the decision-makers shape firm formalization decisions?- the thesis argues that the complexity and information incompleteness that characterize formalization makes it a risky and uncertain decision. In the presence of such uncertainty, decision-makers are driven by bounded rationality to rely on simplified criteria in making decisions (Miller & Wilson, 2006; Simon, 1972). Thus, decision-makers of informal firms will be driven by their bounded rationality to rely on the aspirations they pursue in the informal economy as critical criteria for evaluating the formalization decision.

The thesis consists of one theoretical paper, a paper based on vignette experiments, and a paper based on the World Bank's Informal Enterprise Survey. Together, the three papers investigate how aspirations influence firms' formalization decisions. The first paper (Chapter 2) proposes a behavioral framework of the formalization decision. It argues that owing to bounded rationality, business owners will rely on the aspirations with which they started or operate their firms in the informal economy to evaluate the formalization decision.

Business owners start and operate firms in the informal economy to pursue diverse financial and "non-financial" aspirations. The paper draws on prospect theory to build a set of propositions related to decision-makers' willingness to formalize their firms based on their aspirations. For financial aspirations, the paper argues that business owners will rely on their performance relative to aspiration in making the formalization decision. To build the propositions related to "non-financial" aspirations, the paper proposes a typology of non-financial aspirations for which business owners start and operate firms informal economy. The paper then argues that business owners will use these aspirations as reference points in judging the formalization decision.

The second paper (Chapter 3) extends the arguments in paper one to times of economic disruption and the concurrent pursuit of multiple aspirations. The paper investigates how financial performance and legitimacy aspirations jointly influence formalization decisions in times of economic disruption. It argues that formalization is a movement from an informal logic of market exchange governed by norms and values to a formal logic of market exchange governed by laws and regulations. Hence, formalization is conceptualized as a risky institutional change with an uncertain outcome (Sutter et al., 2017). The paper draws on the behavioral theory of the firm and institutional theory to argue that firms' multiple and sometimes contradictory aspirations (Gaba & Greve, 2019) can independently and jointly predict informal firms' willingness to formalize. This mechanism becomes even important in times of economic crises when firms have to make formalization decisions in the face of extreme uncertainty about the prospects of informality and formality in ensuring their survival. Decision-makers of informal firms, therefore, rely on their firms' performance relative to aspirations on the multiple aspirations to judge the optimal level of formalization in times of economic disruptions.

The final paper (Chapter 4) builds on the first paper by examining the influence of social embeddedness on the financial aspiration - formalization relationship proposed in the theoretical paper. The reliance of informal firms on socially constructed norms and values for their survival and competitive advantage means that they are highly embedded in their social environment. Social embeddedness means that informal firms can leverage shared resources and relationships to increase their capacity for action (Uzzi, 1997). However, social embeddedness also imposes cognitive and cultural limitations on what practices, actions, and strategies are deemed acceptable (Dequech, 2003; Tina Dacin et al., 1999). Using the behavioral theory of the firm and social embeddedness theory, the paper argues that decision-makers of socially embedded informal firms will limit the scope of their search for solutions to underperformance. Further, they will also limit their decision-making information to those that align with the prevailing cognitive schema. This boundedly rational approach to decision-making means that decision-makers are less likely to consider or value the performance-enhancing potentials of formalization. Hence, social embeddedness negatively moderates the influence of financial performance relative to aspiration level on firms' willingness to formalize.

On the whole, the papers together speak to the boundedly rational nature of the formalization decision. They highlight the influence of financial and "non-financial" aspirations on the formalization decision of informal firms (chapter 2). They further argue that business owners can concurrently pursue financial and "non-financial" aspirations in the informal economy, and these aspirations can interact to predict informal firms' willingness to formalize (chapter 3). However, the influence of financial aspirations is moderated by the level to which informal firms are embedded in the informal economy (chapter 4). Further, the mechanism by which financial aspiration influences informal firms' willingness to formalize also varies between stable and unstable macroeconomic situations (chapter 3 and 4).

5.1 Implications

Taken together, the three papers make essential contributions to the extant theory and formalization policy. Specifically, the three papers of the thesis contribute to the literature by 1) conceptualizing formalization as a risky or uncertain decision, 2) developing a typology of "non-financial" aspirations that (informal) firms pursue and 3) highlighting how contextual factors influence the bounded rationality behind formalization decisions. As a result of the theoretical contributions, the thesis contributes to formalization policy by 1) highlighting aspirations as a source of heterogeneity in informal firms' responses to formalization interventions 2) highlighting differences in firms' responses to formalization policies between stable and unstable economic environments.

Firstly conceptualizing formalization as a risky or uncertain decision suggests a boundedly rational rather than a rational decision. This opens up avenues to understand the behavioral mechanisms that underlie the formalization decision. Prior research has focused on the costs and benefits of formalization that are created by existing formal regulations and infrastructure in the macroenvironment (Sutter, Webb, Kistruck, Ketchen, & Ireland, 2017). This focus ignores the substantial complexities and incompleteness of information that characterize the formalization decision. Thus the focus on a rational cost-benefit calculus has led to an elusive understanding of how the process of formalization unfolds (Nguyen et al., 2014; Rand & Torm, 2012; Sutter et al., 2017). Highlighting the boundedly rational and risky nature of the formalization decision allows the thesis to draw on rich insights from behavioral theories of decision-making under risk and uncertainty (Audia & Greve, 2006; Bromiley, 1991; Gaba & Greve, 2019; Greve, 1998) to build a behavioral view of formalization. The behavioral view, in turn, leads to a more realistic understanding of formalization decisions by recognizing its complex nature and integrating issues of perceived injustice, a culture of informality, and social embeddedness that are critical to a complete understanding of the formalization decisions.

Secondly, the thesis contributes to the literature on decision-making under risk and uncertainty by building a typology of "non-financial" aspirations that can influence firms' response to risk-taking. Even though the mainstream management literature has focused on the influence of financial aspirations (e.g., profit) in influencing the risk-taking propensities of firms, there has been a steady increase in studies investing the influence of non-financial aspirations on firms' risk-taking behavior. Gaba and Greve (2019) find that airlines pursue fleet safety (non-financial) aspirations in concurrence with profitability (financial) aspirations and that fleet safety aspirations influence the changing of an airline's fleet both independently and jointly with profitability aspirations. Studies in the family firm literature have also emphasized the pursuit of socioemotional wealth aspirations and its influence on risk-taking, including R&D investments (Chrisman & Patel, 2012) and becoming a member of a cooperative or remaining independent, decisions associated with low and high risks, respectively (Gómez-Mejía et al., 2007). By developing a typology of "non-financial" aspirations that the business owners in the informal economy pursue, the study highlights the multiplicity of non-financial aspirations that different types of firms pursue and their influence on firms' risk-taking behavior.

Furthermore, the typology emphasises an important source of heterogeneity in informal firms' response to the prospect of formalization. Business owners pursuing different non-financial aspirations will use different reference points to judge the prospect of formalizing and respond differently to the risky change that comes with formalization. The implication is that if decision-makers of firms adopt evaluation criteria different from what is assumed by researchers, then researchers may conclude on mechanisms that deviate from the actual mechanisms that underlie firms' formalization decisions. This again speaks to the limitations on the predominant rational cost-benefit perspective. An implicit assumption of the cost-benefit view is that all firms use the same criteria in making the formalization decision. The typology of non-financial aspirations proposed by the behavioral view assumes otherwise.

The assumption of multiple aspirations and thus multiple reference points also has important implications for designing policy initiatives to formalize informal firms. Policy initiatives that do not account for the differences in the aspirations of informal firms will invariably be met with limited success. Our typology thus suggests that a "one-size-fits-all" policy of formalization will only be effective for formalizing firms whose reference points it addresses favorably. To address this challenge, policy interventions can start by first mapping out the targeted informal economy to identify its make-up in terms of the categories of aspirations being pursued. The policies can then be tailored to the largest or most viable categories of informal firms to formalize. Informal firms started or operated by subsistence aspirations are started as a survival strategy and are usually micro-enterprises with low resource endowments (Rand & Torm, 2012; Williams et al., 2016) serving small geographical areas, usually neighborhoods.

A formalization policy targeted at these firms must address their central need for survival by ensuring that 1) financial costs of formalization do not automatically lead to the failure of such firms 2) business owners are equipped with the business skills needed to take advantage of the benefits of formalization 3) business owners are trained to scale-up their ventures or pivot to products that serve broader markets beyond their immediate vicinity. On the other hand, policies targeting firms with exploitation aspirations can focus on 1) enforcement to drive opportunistic firms operating informally out of a desire to increase existing profits (e.g., intervention studied by (de Andrade et al., 2016)) 2) business development training and support with possible tax incentives for business owners starting informally as a proof-of-concept. Policies aimed at firms with legacy aspirations must target the formalization of the whole community, industry, or ethnic business clusters to which such firms belong. Such a strategy will reduce the tendency for formalizing firms to feel that they are going against informally agreed codes of conduct (De Castro et al., 2014; Thapa Karki et al., 2020). Finally, policies targeting firms with resistance aspirations must include conflict resolution mechanisms that address the source of defiance by such informal firms. These suggestions are not meant as an exhaustive list of policy characteristics for each category of informal firm but as examples of how policy initiatives can be adapted to each category of firms. Further, it is not the aim of the thesis to claim a "cure-all" view of formalization. Indeed, findings from chapters 3 and 4 indicate that the influence of firm aspirations of formalization decisions differ based on the level of uncertainty in the macroeconomic environment and the level of social embeddedness of each informal firm.

Finally, the thesis emphasizes the influence of two contextual factors, economic disruptions, and social embeddedness, on the financial aspiration – formalization relationship. In so doing, the thesis highlights how contextual factors exacerbate the boundedly rational nature of the formalization decision. The radical and unforeseen nature of economic disruptions substantially increases the uncertainty associated with the formalization decision. On the other hand, social embeddedness imposes cognitive and cultural limitations that limit the scope of the search for solutions to underperformance or limit decision-making information to those aligned with the prevailing cognitive schema. By addressing the influence of these factors, the thesis stresses that aspirations do not work alone in predicting informal firms' formalization decisions. This assertion opens up opportunities for future research into other factors that may shape the bounded rationality of decision-makers in the informal economy and to further test the boundary conditions of the aspirations-formalization mechanisms proposed by the behavioral view of firm formalization.

Moreover, policy initiatives must account for contextual factors that may influence informal firms' responses outside the firms' aspirations. For example, the thesis suggests that even though firms performing above financial aspiration level in times of economic disruption may be more willing to formalize than firms performing below aspiration level, such firms will be willing to do so only at "low commitment" levels of formalizations. Hence, even though such firms may become open to business name registrations, they will be less open to formalization that involves the payment of taxes at the national or municipal level. Policy initiatives in times of economic disruption can focus on business name registration only to identify and track firms that have a potential for higher levels of formalization in the future.

5.2 Limitations

Like Jeff Schroedl's efforts to produce a completely legal version of the Real Book, the quest of the thesis to understand how the bounded rationality of decision-makers shapes the formalization decision of informal firms is not without limitations. Firstly, the thesis draws on both individual-level (prospect theory) and firm-level (behavioral theory of the firm) theories of decision-making to understand the influence of aspirations on firms' formalization decisions. This combination leaves questions about the level of analysis for which the mechanisms proposed in this thesis are appropriate. Informal firms arise as a means of individuals exploring opportunities in the informal economy (Webb et al., 2009). Moreover, decision-making in the predominantly small and medium-sized informal firm is usually dominated by owner-managers (Ulyssea 2015; Webb, 2013; Chen, 2007; Chen, 2000), making a strong case for the individual-level origins and influence of aspirations. However, the way aspirations are set and responded to is based on both individual and contextual factors (Lant & Shapira, 2008). This is especially true for informal firms as they are frequently highly embedded within their social context. Hence, it can also be argued that the aspiration setting and response within informal firms will reflect a bargaining process among a coalition of organizational stakeholders (Cyert & March, 1963; Mitchell et al., 1997). Thus it is evident that the individual-level-firm-level conflict in the proposed framework reflects the fundamental nature of informal firms; it is quite challenging to create a dichotomy between the individual business owner and the firm.

This thesis addresses the conflict by differentiating the nature of the primary decision makers in each chapter. In chapter 2, the thesis focuses on the business owner as the primary decision-maker, thus employing an individual-level theory (prospect theory). In chapters 3 and 4, the thesis relaxes this assumption and extends the proposed framework to recognize situations where the firm may have managers outside the business owner. Such a situation is frequently observed when the business owner has more than one business or business location or if the firm is in the manufacturing industry (e.g., chapter 3; De Castro et al., 2014). One way of dealing with this dilemma in future studies will be by embracing the heterogeneity among informal firms. Individual-level analyses will best suit future studies that predominantly focus on self-employed entrepreneurs within the informal economy. On the other hand, studies that focus on small and medium-scale enterprises, especially in the manufacturing industry, would be better suited by firm-level analyses.

Again, by focusing solely on formalization as a solution to the underperformance problem of informal firms, the study ignores other viable strategies by which informal firms may address their underperformance. An underperforming firm may, for example, be more open to changing its product line to focus on more culturally relevant versions of the same product or to focus on the marginalized portions of the product's market to reduce direct competition from larger or more formal competitors. In other cases, informal firms may focus on securing cheaper or free sources of raw materials (Webb et al., 2013) within the locality to cut down costs or use the existing firm resources to produce alternative products of value to customers in the locality. Chapter 4 attempts to address this by theorizing how social embeddedness limits the search for a solution to underperformance to the local environment of the decision-maker. However, not empirically accounting for this means that the study misses out on potential interdependencies that may exist between alternative strategies and the formalization decision. Moreover, the formalization decisions studied by the two empirical papers in the thesis have been intentions rather than actual behavior. Decision makers' willingness to formalize their informal firms may not necessarily translate into actual formalization, as actual behavior might be different from intentions. Hence the possibility of not accurately estimating the actual probability to formalize.

Future studies can address these limitations by relying on panel data and field experiments that account for multiple solutions to the underperformance problem in addition to formalization. Such a panel data set would also be valuable in understanding how these decisions change over time. The challenge with acquiring a data set is the general difficulty of tracking informal firms over time. The more suitable and perhaps regularly used alternative is field experiments. In spite of the possibly high costs involved in running large-scale field experiments, such studies will invariably provide stronger claims on causal effects that may be observed. Further, using large-scale panel data or experiments will also be valuable in observing actual formalization decisions.

5.3 Concluding Remarks

Much research has conceptualized the formalization decision as a straightforward rational consideration of the benefits relative to the costs (e.g., Blackman, 2000; de Mel et al., 2013; de Soto, 1989; Perry et al., 2007; Siqueira et al., 2016). However, this thesis conceptualizes formalization as a risky and uncertain decision that can lead to firm failure. Formalization decisions include multiple interrelated variables that create interdependencies between the formalization decision and other decisions facing the firms' decision-makers. The limited ability of decision-makers to include and process all relevant variables into the decision process means that the formalization decision is a risky and uncertain decision driven by bounded rationality. A complete understanding of firm formalization decisions must account for the behavioral mechanisms that are triggered by decision-makers' bounded rationality. In this respect, aspirations that decision-makers' pursue in the informal economy are important evaluation criteria for formalization decisions. Furthermore, improvements in our understanding of the formalization decision should translate to progress in designing and implementing formalization policies.

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