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The formal institutional context of informal entrepreneurship: A cross-national, configurational-based perspective

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ABSTRACT

While previous comparative research has identified the formal institutional conditions that differentiate countries on their degree of informal entrepreneurship, this paper examines the characteristics that shape cross-national diversity in its type. Based on a series of fuzzy-set qualitative comparative analyses (fs/QCA) of 138 country cases, we find evidence of causal heterogeneity in the configuration of institutional conditions associated with entrepreneurial outcomes that are informal and growth-oriented and those that are informal and subsistence-oriented. Given our results, we propose that the formal institutional-based conditions that differentiate between types of informal sectors are best identified by the conjoint mixture of strength and weakness of state capabilities across multiple domains, rather than by uniform weakness, or voids, along all state functions. In our discussion, we explore the implication of our configurational-based findings for the comparative analysis of national systems of informal entrepreneurship and for the tailoring of policies to account for the multiple institutional-based pathways by which entrepreneurs come to enter into the informal economy.

1. Introduction

A growing stream of research has begun to conceive of the informal economy as deeply embedded in, rather than separate from, formal institutional structures. From this viewpoint, informal economies – defined as the collection of firms, workers, and activities that operate outside legal or regulatory frameworks (Loayza, 2016) – do not operate in a void or vacuum of institutional-based resources, as if the informal economy represents an "untamed market" in which the state disappears in its entirety (Portes and Haller, 2005, p. 406). Instead, the formal institutional environment continues to shape the opportunities and constraints that workers, entrepreneurs, and enterprises encounter in the informal sector (Godfrey and Dyer, 2006; Godfrey, 2011; Guha-Khasnobis et al., 2006; Webb and Ireland, 2015).

This observation that the formal institutional context of the informal sector should not be seen as "all or nothing, zero or one", but instead requires a more nuanced analysis, arises from efforts to reconcile seemingly contradictory findings within the informal entrepreneurship literature (Webb and Ireland, 2015, p. 32). Some studies have shown that informal entrepreneurship can be creativity-driven and growth-oriented, as actors turn to informal ties as an enabling substitute for ineffective and corrupt formal regulations to engage in legitimate and productive activities (De Soto, 1989; Webb et al., 2009; Webb et al., 2013). In contrast, others have asserted that informal actors are not "heroes throwing off the shackles of a burdensome state" (Williams et al., 2012, p. 531), but instead lack the skills and resources necessary to run anything except rudimentary businesses in industries with near-perfect competition (Alvarez and Barney, 2014). These individuals work in the informal economy because they are shut out from formal jobs, safety nets, and alternative ways of making a living (Bruton et al., 2015; La Porta and Shleifer, 2014; Wood, 2003). While these qualitative differences between "growth-oriented" and "subsistence-oriented" informal enterprises are well-documented in multiple reviews of the literature, less empirical work has examined the boundary conditions that explain when and where each form is more likely to arise (see Berner et al., 2012; Williams and Nadin, 2010).

Loayza's (2016) analysis of the two billion individuals globally who work without a formal contract illustrates these concerns about distinct pathways of entry into the informal sector. He estimates that in 2016, 71.5%, or 1.43 billion people, operated rudimentary enterprises that pursued subsistence-oriented goals and hired, if at all, from the owner's immediate family; the remaining 570 million worked in enterprises that hired off the books but nonetheless sought opportunities to grow beyond small, owner-operated ventures. Loayza (2016) further breaks down these global estimates by country, demonstrating wide cross-national diversity in the types of entrepreneurs that operate in the

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informal sector. While previous work has examined why national systems of entrepreneurship vary in the total size of the informal sector (Autio and Fu, 2015; Dau and Cuervo-Cazurra, 2014; Schneider and Enste, 2000), we know less about why countries may differ so strongly in the kinds of entrepreneurs found within it.

To advance a more nuanced comparative research agenda that accounts for differences in kind, as well as degree, this paper combines two streams of research that have rarely been viewed in tandem. First, the informal entrepreneurship literature has identified the need for a more complex analysis of the formal institutional contexts in which informal entrepreneurship is embedded (Godfrey and Dyer, 2006; Godfrey, 2011; Guha-Khasnobis et al., 2006; Webb and Ireland, 2015); and second, the state fragility literature has demonstrated that significant sources of cross-national institutional variation rest in the constellation of a state's capabilities to enforce a range of state functions (Call, 2011; Grävingholt et al., 2015; Marshall and Cole, 2017). Together, these fields suggests that the full set of formal institutional effects on entrepreneurial outcomes are likely to sit at the intersection of multiple domains, rather than within any single one (Ault and Spicer, 2020).

In our empirical analysis, we combine Loayza's (2016) comprehensive dataset on the informal economy with Ault and Spicer's (2020) cross-national, multidimensional state fragility index. To ensure that our analysis is not constrained to a narrow range of countries, but instead includes a fully-populated, global comparison, we include 138 nations in our underlying sample to add a greater diversity of cases than would be possible through a small-N or single-country research design. To further account for the possibility of heterogeneous effects in our large-N comparative study, we adopt a fuzzy-set qualitative comparative analysis (fs/QCA) methodology as it permits the inclusion of many country cases without assuming uniform results across all national settings (Ragin, 2000, 2008). Although fs/QCA is often applied to small-N studies, an advantage of a large-N, fs/QCA is that it allows for the identification of causally-heterogeneous subpopulations to emerge through empirical analysis rather than forcing investigators to make population-level assumptions of causal homogeneity at the start of a study (Greckhamer et al., 2013).

Our results caution against viewing all informal entrepreneurs as part of a causally-homogeneous population whose common feature is that they operate outside a country's formal regulatory system. Instead, we find that a constellation of formal institutional conditions – beyond just the regulatory domain – shape multiple pathways by which entrepreneurs enter into the informal sector, thus supporting those who have called for researchers to treat subsistence and growth-oriented informal entrepreneurs as independent subpopulations (Berner et al., 2012; Williams and Nadin, 2010). We also show in our analysis that countries with hybrid institutional characteristics defined by a mixture of strength in some domains and weakness in others, such as Russia and China, do not sit halfway along a linear continuum between fully strong and fully weak states, but instead represent an independent set of institutional conditions that requires separate analysis in their own right. We finally propose that policymakers need to recognize the diversity of formal institutional characteristics that shape multiple pathways of entry into a country's informal sector when tailoring interventions to meet the needs of informal entrepreneurs in specific country or regional settings.

2. The formal institutional context of informal entrepreneurship

A national systems framework extends the study of entrepreneurship beyond individual motivations and strategies to also examine how national institutions shapes patterns of "who acts and the outcomes of individual action" (Acs et al., 2014, p. 476). In this section, we integrate the informal entrepreneurship and state fragility literatures to advance a more nuanced comparative analysis of the formal institutional characteristics that shape who acts in a country's informal economy.

2.1. A variety of informal entrepreneurs

Berner et al. (2012, p. 382, 387) observe that "distinct categories of entrepreneurs in the informal sector have been discovered no less than five times independently", showing that "survival and growth-oriented entrepreneurs follow qualitatively different logics". House (1984, p. 280) similarly posits that "two very different groups of people are hypothesized to exist in the informal sector and are distinguished by their activities, attitudes, and motivations". Godfrey (2011, p. 265) also notes the heterogeneous types of informal entrepreneurs found across the world, stating that: "Informal economic activity may help lift people out of poverty or trap them into it. The field, as well as real progress in mitigating the devastating effects of poverty around the globe, will be well served when scholars look for both the positive and negative aspects of informal economic activity in their research".

Despite frequent calls to differentiate between types of informal entrepreneurs, comparative research has tended to study the national characteristics that explain variation in the overall size of the informal sector rather than its type (Autio and Fu, 2015; Dau and Cuervo-Cazurra, 2014; Schneider, 2005; Schneider and Enste, 2000). One primary reason for this focus lies in the limited amount of large-scale and commensurate data across a wide range of country settings; estimating the size of the informal economy is difficult in itself, let alone differentiating between the types of entrepreneurs that act within it (Schneider and Enste, 2000).

A second obstacle to studying diversity in kind rests in the challenges that arise if different types of informal entrepreneurship require distinct causal explanations. For instance, Williams and Nadin (2010, p. 371) observe that "marked socio-spatial variations exist both in the tendency of entrepreneurs to work off-the-books as well as the types of informal entrepreneurship conducted, the characteristics of informal entrepreneurs and their motives for engaging in such endeavor. The consequence is that no one theoretical perspective toward informal entrepreneurship appears to be universally applicable. Instead, different perspectives seem to be more relevant in some populations than others". If different perspectives apply more to "some populations than others", then the causal mechanisms that explain the emergence of one type of entrepreneurship in one location are unlikely to explain what takes place in another.

Godfrey (2011) similarly calls for researchers to integrate theoretical perspectives to explain the diversity of actors found within and across informal sectors. For instance, he notes that researchers predominately apply a "legalistic" approach to the study of formal institutional effects on informal outcomes that models "participation in the informal economy as a free choice" dependent on the relative legal costs and benefits of operating in the formal economy (Godfrey, 2011, p. 247–248). From this perspective, weak regulatory systems create incentives and opportunities that pull some actors out of the formal sector and into the informal sector. This type of opportunity-seeking informal entrepreneurship may be illegal, since it operates outside the domain of formal law, but remains legitimate because large groups consider it an acceptable and productive response to corrupt or ambiguous laws (Webb et al., 2009). Cross-national empirical analysis usually operationalizes the legalistic perspective by demonstrating a strong, inverse relationship between the strength of a state's regulatory institutions and the size of its informal sector (Autio and Fu, 2015; Dau and Cuervo-Cazurra, 2014; Schneider, 2005; Schneider and Enste, 2000).

Despite the dominance of the legalistic perspective, Godfrey (2011) observes that the broader literature identifies multiple pathways of entry into the informal economy. One alternative institutional-based perspective, which has been predominately applied to the subset of subsistence-based, informal entrepreneurs, examines the effects of a state's ability to provide basic welfare services rather than enforce a rule of law. For instance, Centeno and Portes (2006) posit that a lack of government safety nets (e.g., disability benefits, social security,

unemployment insurance) often compels those who cannot find formal employment to seek work in the informal economy to avoid destitution. Williams (2014, p. 197) similarly hypothesizes that "the prevalence of informal sector entrepreneurship will be greater in those countries with lower social transfers and lower levels of social protection to safeguard workers from poverty". Alvarez and Barney (2014) likewise observe that informal actors in subsistence markets often lack basic education, nutrition, and healthcare, and thus do not possess the capabilities to build complex organizations, maintain competitive barriers, or recognize and exploit market opportunities. Therefore, the lack of basic state-provided welfare services at the national level is likely to tip informal economies toward subsistence rather than opportunity-oriented outcomes.

La Porta and Shleifer (2014) make a similar argument to explain the prevalence of subsistence-driven informal entrepreneurs across the world. Rather than taking a "romantic view of informal firms as reservoirs of productive entrepreneurial energy", they posit that "most of these firms are too inefficient to survive in the formal sector and do not join it even when barriers to entry are eliminated" and that "a shortage of educated entrepreneurs might be the most important constraint on transition to formality, much more important than lack of demand" (La Porta and Shleifer, 2014, p. 120–121). These insights point to constraints in human capital, rather than weakness in formal regulations, as a critical explanation for the persistence of subsistence-oriented informal sectors. Therefore, weakness in formal regulations may not be a sufficient condition to explain when a country's informal sector is filled with innovative entrepreneurs that would otherwise compete in the formal sector. Concomitant weakness along other institutional dimensions may drive the least advantaged members of society to enter into the informal economy and trap them into poverty, rather than provide them a chance to escape it through opportunity-seeking entrepreneurship (see also Godfrey, 2011).

An integration of these institutional-based perspectives suggests that formal institutional conditions may influence both the pulls and pushes into the informal sector at the same time. On the one hand, weak legal systems may create incentives and opportunities that pull some opportunity-seeking entrepreneurs out of the formal sector and into the informal economy. On the other hand, weak formal welfare systems may push large numbers of people to seek survival in the informal economy. Viewing these two institutional-based effects in tandem suggests a nation's formal institutional characteristics may shape multiple paths, rather than provide a single corridor, of entry into the informal sector.

2.2. A variety of fragile states

We propose that recent work on state fragility in the fields of international development (Call, 2011; Grävingholt et al., 2015; Marshall and Cole, 2017) and international entrepreneurship (Amorós et al., 2019; Ault, 2016; Ault and Spicer, 2014, 2020) provides a strong orientating framework to integrate competing accounts of formal institutional-based effects found in the informal entrepreneurship literature. The state fragility literature relaxes the assumption of a strong and unitary state as a background condition in cross-national comparisons and instead compares countries based on the degree to which the government possesses the capabilities to implement and enforce policies and programs across multiple institutional domains (Marshall and Cole, 2017). Moreover, instead of viewing states as uniformly strong or weak across all their functions, the state fragility research tradition provides a conceptual and empirical framework to analyze "which parts of the state are weak, to what degree, and in which configuration" (Ault and Spicer, 2020, p. 996).

Therefore, while the informal entrepreneurship literature suggests that multiple institutional effects along regulatory and welfare dimensions are likely to influence informal outcomes in a society, the state fragility literature provides an empirical framework to examine potential configurational-based effects of state capabilities that extend across multiple domains at the same time. By integrating the conceptual insights and empirical traditions of these two fields, the broader state fragility literature supports a comparative research design that unbundles the concept of a formal institutional context of entrepreneurship into the types of institutional-based dimensions already identified in the wider informal entrepreneurship literature, rather than comparing formal institutional characteristics along a single metric or within a single domain (Ault and Spicer, 2020).

3. Methodology

The integration of the informal entrepreneurship and state fragility literatures raises several methodological concerns for empirical analysis. The first relates to specifying an empirical model that treats growth and subsistence-oriented forms of informal entrepreneurship as independent subpopulations. This concern cautions against an assumption that the formal institutional conditions that drive growth-oriented forms of informal entrepreneurship are necessarily the same that drive subsistence-oriented ones. For instance, Bowen and De Clercq (2008) propose that "weak property rights" at the national level negatively influence growth-oriented forms of entrepreneurship and, at the same time, positively influence necessity-oriented entrepreneurship. In contrast, causal heterogeneity across subpopulations raises the possibility that the set of institutional conditions that explain differences in growth-oriented outcomes may not necessarily be the direct opposite, or even in any way related, to those that drive necessity-oriented outcomes.

Ragin (2000, Chapter 2) refers to this general methodological concern as the challenge of "constituting populations". He observes that in most variable-based, deductive statistical techniques, the boundaries of the theoretical populations need to be defined by the investigator at the start of the analysis so that the rationale in choosing any sampling frame can be fully explained. Yet, he cautions that if researchers depend too heavily on "prior and unexamined constitutions of population boundaries" when extending the scope of comparative analysis, they might "relegate unrecognized heterogeneity to the error vectors of probabilistic models when it should be conceived, if properly recognized, as multiple populations (i.e. as diversity)" (Ragin, 2000, p. 50). The study of cross-national diversity in informal entrepreneurship therefore requires methodologies that allow for causal conditions to systematically vary across country subpopulations, rather than assume a singular homogeneous effect that operates in the same manner across all contexts.

A related methodological concern relates to delineating meaningful boundaries between country sub-populations. Drawing on the state fragility literature, we previously proposed that these boundaries are likely to rest in the configurational mix of institutional capabilities across multiple domains, rather than uniform strength or weakness across all of them (Ault and Spicer, 2020; Call, 2011; Grävingholt et al., 2015). The challenge is that comparative indices often do not account for configurational-based sources of cross-national diversity. While many studies theorize that countries possess multiple characteristics that interact to produce system performance, Acs et al. (2014, p. 482) nonetheless observe that "[m]ost received indices are not systemic in this sense, as they do not allow index components to interact. Instead, received indices allow each component to create an independent contribution to the index total regardless of the value of other components. This means that system dynamics produced through component interactions are ignored".

A few examples illustrate the lack of empirical operationalization of systemic interactions in the comparative analysis of national systems of entrepreneurship. Batjargal et al. (2013) propose that the institutional environments in developing countries are best conceptualized as polycentric and multifaceted in their effects. However, these authors nonetheless operationalize polycentric institutions with a single-dimensional typology that they call a "confluence of weak

and inefficient institutions" in their empirical analysis (Batjargal et al., 2013, p. 1025). Webb et al. (2020) similarly theorize about the multiple characteristics and effects of weak formal institutions in shaping cross-national diversity of entrepreneurial outcomes, including a comprehensive list of regulatory and welfare state functions like those described in our previous literature review. Yet, when developing the final measure to ground their hypotheses, they bundle these multiple dimensions of the formal institutional environment into a single typology called "formal institutional voids" that aggregates, rather than differentiates, across institutional domains. Researchers who explicitly theorize about the multiplicity of effects of state fragility on entrepreneurial outcomes also typically apply an aggregate measure rather than analyze more nuanced, configurational-based effects (Amorós et al., 2019; Ault, 2016; Ault and Spicer, 2014).

A potential limitation to unidimensional comparisons is that aggregating lower-level dimensions into higher-order constructs may leave interactive effects unrecognized. For instance, Fiss (2011, p. 396) observes that "the intuitive simplicity of typologies masks some important complexities". In turn, he posits that "hybrid" cases, where underlying constituent elements may have independent or conjoint effects, often remain unexamined in fields that have come to unquestioningly adopt single-dimensional typologies or indices. Increasing the number of dimensions in comparative institutional analysis may therefore be necessary to capture more configurational-based forms of cross-national diversity, particularly as more developing country cases are added to comparative samples.

Another methodological concern rests in specifying configurational-based institutional conditions, given the vast number of possible national characteristics that may interact to explain systemic outcomes. For instance, Acs et al. (2014) list 17 institutional variables that might influence national systems of entrepreneurship. Webb et al. (2020) further propose that both formal and informal institutional characteristics are likely to interact to explain variation in entrepreneurial outcomes. Mair et al. (2012) describe the complex interface of economic, social, and religious domains in their systemic analysis of a new entrepreneurial ecosystem. In this paper, we follow the lead in the configurational-based research tradition that balances the choice between simplicity and complexity by beginning with a relatively small number of dimensions previously identified in existing research and then examining the interactions between these subcomponents (Ragin, 2000). In our case, we chose to focus solely on the effort to "deconstruct formal institutional environments from a single, homogeneous category to a complex, multi-faceted phenomena" (Webb and Ireland, 2015, p. 343), given that the literature points to myriad formal institutional effects on informal entrepreneurship, but makes little effort to reconcile different theoretical approaches. In our empirical analysis, we build on advances in the state fragility literature that demonstrate that developing countries differ in the types of state capabilities they possess (Ault, 2016; Ault and Spicer, 2014, 2020). However, our focus on this range of formal institutional conditions does not imply that other types of configurational effects are neither possible nor important.

3.1. Fuzzy-set qualitative comparative analysis

To address the methodological concerns that arise from investigating the distinct institutional configurations associated with different subpopulations of informal sectors across the world, we build on the vocabulary and tool-kit found in fuzzy-set qualitative comparative analysis (fs/QCA) (Fiss, 2007, 2011; Judge et al., 2014; Misangyi et al., 2017; Ragin, 2000; Witt and Jackson, 2016). Fs/QCA uses a system of Boolean algebra – a notational system that permits the algebraic expression of logical statements – to analyze and communicate a wide range of possible conjoint causal conditions in comparative analysis. For instance, Fiss (2007, p. 1183–1184) uses the Boolean operators • (and), + (or), ∼(not), and → (the logical implication) to express different types of configurational-based relationships identified through fs/QCA. To illustrate, if two conditions A and B only have an effect on an outcome Z when both are present, then the Boolean statement would be A • B → Z, using the "and" operator. If either condition A or condition B is sufficient by itself to lead to the outcome Z, then the statement would be expressed as A + B → Z, using the "or" operator. If the presence of A and B plus the absence of a third condition C explains the outcome Z, then the "not" operator would be included to capture the absence of a condition, such that A • B • ∼ C → Z. If a set of causal conditions are able to produce the outcome Z by themselves, then those causal conditions are referred to as sufficient conditions. A causal condition may be necessary but not sufficient if all cases that display the outcome Z share that causal condition in common, but that condition alone is not able to fully explain the outcome (see also Misangyi et al., 2017; Ragin, 2000).

To examine the complex causal conditions that link a country's type of state fragility to informal entrepreneurial outcomes, we designed three distinct fs/QCAs to analyze three sets of outcome conditions. The first fs/QCA analyzes the configurations of formal institutions associated with the largest informal sectors across the world. We then divide the overall informal sector into two subpopulations for additional analyses; the second fs/QCA examines the formal institutional conditions associated with the largest subsistence-oriented informal sectors in the world; and the third fs/QCA examines the institutional conditions associated with the largest growth-oriented informal sectors. By conducting three separate analyses, we are able to examine two different types of boundary conditions likely to separate country contexts: (1) the formal institutional conditions that differentiate the countries with the largest formal and informal sectors in the world; and (2) the formal institutional conditions that differentiate the countries with the largest subsistence-oriented and largest growth-oriented informal sectors. Our analysis thus allows for the possibility that these two types of scope conditions are not causally symmetric or otherwise parallel in their specification.

3.2. Data

Table 1 summarizes the data used in the three fs/QCAs that make up the broader study. The top part of the table summarizes the three outcome conditions – one for each analysis – and the bottom portion summarizes our causal conditions.

3.2.1. Outcome conditions

To capture both the degree and type of entrepreneurship that occurs in the informal sector, we build on a dataset developed by Loayza (2016) that divides each country's labor force into three categories, which he labels: (1) the formal sector; (2) the modern-informal sector; and (3) the rudimentary-informal sector. He calculates each sector as percentages of total labor, with the sum of the three adding to 100%. To capture the overall size of the informal sector in a 2016 cross-sectional comparison of countries, Loayza (2016) uses the World Bank's (2014) estimate of country-level contribution rates to mandatory pension and social security programs. The World Bank (2014) has demonstrated that pension contribution rates are highly, and negatively, correlated with the overall size of the informal sector. To create our measure for the overall size of a country's informal sector, we subtracted from one Loayza's (2016) estimate for the percentage of total hiring that takes place in the country's formal sector.

To capture the subset of informal entrepreneurship that he refers to as rudimentary – defined as the percentage of a country's workforce that is unregistered and works for firms that only hire family members from the same household – he uses the vulnerable employment measure from the International Labour Organization's (2016) annual Labour Force Survey conducted in over 200 countries. The ILO (2016) defines vulnerable employment as the sum of own-account workers and contributing family workers. Own-account workers are the self-employed who do not hire long-term employees outside the household.

Table 1
Data summary.

Outcome Conditions			
Condition		Description	Source(s)
(1)	Size of the Informal Sector	Percentage of total labor employed by unregistered firms	Loayza (2016)
(2)	Size of the Subsistence-Oriented Informal Sector	Percentage of total labor employed by unregistered firms that do not hire outside the immediate family	Loayza (2016)
(3)	Size of the Growth-Oriented Informal Sector	Percentage of labor employed by unregistered firms that hire outside the immediate family	Loayza (2016)
Causal Conditions			
Condition		Description	Source(s)
(1)	Regulatory Capability	The state's ability to effectively implement formal regulations and laws	Ault and Spicer (2020)[a]
(2)	Social-Welfare Capability	The state's ability to provide basic welfare-supporting services, such as healthcare, education, and infrastructure	Ault and Spicer (2020)[a]
(3)	Security Capability	The state's ability to ensure safety and stability	Ault and Spicer (2020)[a]
(4)	Democracy	"Extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media"[b]	Independent Factor Analysis[c]
(5)	Population	Population, total	World Bank (2016)
(6)	GNI per Capita	GNI per capita, Atlas method (current US$)	World Bank (2016)

Note: All variables, except GNI per Capita, were calibrated using the median as the crossover point and the 75th and 25th percentiles as the upper and lower thresholds. GNI per Capita was calibrated using 4 thresholds: the World Bank's (2019) groupings for Lower-Middle, Upper-Middle, and High income, plus Ragin's (2008) threshold for the highest income countries.

[a]Factor scores reported in Ault and Spicer (2020).

[b]Definition for democracy taken from Kaufmann et al. (2016).

[c]Data for the independent factor analysis of democracy come from the following sources: The Economist Intelligence Unit's (2016) Democracy Index; Kaufmann et al.'s (2016) Voice and Accountability Measure; and the Freedom House's (2016) Electoral Freedom Measure.

Contributing family workers are those who work informally for an own-account firm operated by a relative from the same household. While this differentiation between the set of own-account workers that operate rudimentary enterprises and the set of all other informal workers that work in larger and more complex organizations may seem to be a relatively blunt boundary condition, Loayza (2016) nonetheless estimates that approximately 1.43 billion of the 2 billion individuals who work in the informal sector fall within the own-account category. In our analysis, we rely on this estimate of the share of the labor force employed as own-account workers and contributing family members as an empirical proxy to measure the size of a country's subsistence-oriented informal sector.

Finally, Loayza (2016) estimates what he calls the modern subset of informal entrepreneurship, which he defines as the percentage of labor that is unregistered, but works for firms that hire outside the household. To estimate country differences, he first measures all unregistered employees of enterprises that the International Labor Organization's (ILO's) Labour Force Survey (2016) identifies as working outside the immediate family, thus differentiating those that work for growth-oriented firms from those that operate their own enterprises and never hire beyond the household. He then removes the number of people previously identified as working in the formal sector to estimate the percentage of informal employees that work in growth-oriented enterprises. In his estimations, Loayza (2016) controls for variation in natural unemployment rates to account for those in the labor force that are unemployed, rather than working in the informal sector. Overall, he estimates that approximately 570 million individuals worldwide work informally for growth-oriented firms. In our analysis, we rely on these estimates to measure the size of a country's growth-oriented informal sector.

3.2.2. Causal conditions

To specify the set of formal institutional conditions likely to influence both the size and type of a country's informal sector, we use the cross-national comparative measures of state fragility reported in Ault and Spicer (2020). This paper reports an independent confirmatory factor analysis (CFA) of 22 variables found in the composite Polity IV State Fragility Index (Marshall and Cole, 2016) and the Brookings Institute Index of State Weakness in the Developing World (Rice and Patrick, 2008). The results provide standardized measures for three distinct dimensions of state fragility that we use in our study: (1) a political dimension, which refers to the state's capabilities to effectively implement formal regulations and laws; (2) a social-welfare dimension, which refers to the state's capabilities to provide basic welfare services, such as education and clean water, to a majority of its citizens; and (3) a security dimension, which refers to those capabilities that ensure safety and stability.

Ault and Spicer (2020) further found three measures of regime type that are included in other state fragility indexes – the EIU (2016) Democracy Index; the Kaufmann et al. (2016) Voice and Accountability measure; and the Freedom House (2016) Electoral Freedom measure – but did not load on any state capability factor in their analysis, a finding consistent with numerous observations that regime characteristics are best viewed separately from state capability (Gisselquist, 2014). Given these results, these three measures were not included in the final analysis. However, as the previous literature on the drivers of informal entrepreneurship has included a measure of regime type (Autio and Fu, 2015), we chose to combine these three measures and include them as a separate causal condition in our analysis. To test whether these variables belong together as an independent democracy factor, and to validate the Ault and Spicer (2020) factors, we conducted a separate CFA that confirmed the convergent and discriminant validity of all measures of state capability plus democracy.

In summary, the factor analysis used in this study supported the use of three distinct dimensions of state capability, plus the inclusion of a separate democracy measure. To avoid confusion with democracy, we named our political indicators the regulatory dimension of state capabilities. While democracy refers to citizen participation in lawmaker selection, regulatory fragility deals with the state's inability to implement its own laws and policies (Gisselquist, 2014). We inverted all state fragility indicators found in so that a higher score indicates greater capability. Thus, our final set of causal conditions include standardized measures for regulatory, social-welfare, and security state capabilities, plus democracy.

While some state fragility researchers include a separate economic dimension in their indexes (e.g., Marshall and Cole, 2016; Rice and Patrick, 2008), Ault and Spicer (2020) did not find empirical support for this dimension in their factor analysis. However, since we were

interested in the possibility that subpopulations could be defined by their level of wealth as well as their institutional context, we included the World Bank's 2016 measure for GNI per Capita, Atlas method, in the model (World Bank, 2019). Finally, Khoury and Prasad (2015) note that management research in developing economies disproportionately focuses on large countries (e.g., China, Brazil) and generalizes its findings to the entire developing world. To assess the degree to which large countries represent a distinct category of countries, we added the World Bank's (2019) 2016 measure for population size to the model.

3.3. Analysis

Our final sample consisted of 138 country-cases, which includes every sovereign nation reported across all datasets used in the analysis. The total labor force in this final sample of countries was 2.98 billion people, with 1.10 billion found in the formal sector and 1.88 billion found in the informal sector. Within the informal sector, this number further breaks down to 1.32 billion in the subsistence-oriented sector and 557 million in the growth-oriented sector. Despite our smaller sample of countries relative to the full Loayza (2016) dataset, our study still covers 93% of the individuals found in his study.

The first step in fs/QCA is to calibrate the data into membership scores for each case according to its deviation from set anchors for full membership, full non-membership, and a crossover point. To calibrate the data, we selected a continuous fuzzy-sets approach akin to ratio scales that allows the cases to take any value in the interval from 0 to 1 (Fiss, 2007). When possible, fs/QCA authors suggest that meaningful standards for calibration should be derived from the researcher's own substantive knowledge of the cases. However, as Greckhamer et al. (2013) observe, this calibration strategy presents a problem for large-N fs/QCA because the researcher is unlikely to possess sufficiently intimate knowledge of all the cases to make subjective assessments. One solution to this issue is to use external benchmarks for calibration anchors (Misangyi et al., 2017). In our case, we relied on external guidelines to anchor our calibration of what constitutes a wealthy country. Specifically, we followed Ragin (2008, p. 90) and set the anchor for full membership at $20,000 GNI per capita. To calibrate the other thresholds for this condition, we followed the World Bank's cutoffs for high-income ($12,476), upper-middle income ($4,036), and lower-middle income ($1,025). When external benchmarks are unavailable, Greckhamer et al. (2013) suggest setting the crossover point at the median, with the 25th and 75th percentiles serving as the lower and upper thresholds. Given that external benchmarks were unavailable for our remaining measures, we followed this calibration strategy.

To execute the fs/QCAs, we first conducted necessity tests of all attributes and their negations and then developed sufficiency analyses using the truth table algorithm typically found in the literature. In line with the existing literature, we defined any causal attribute with a consistency greater than 0.85 and coverage greater than 0.50 as a necessary condition (Haxhi and Aguilera, 2017). Next, we created a truth table, or data matrix of all logically possible combinations of causal conditions associated with a designated outcome, and then reduced the truth table according to the following two criteria: (1) a minimum of at least two cases in a given configuration for a solution to be considered; and (2) a lowest acceptable consistency score of 0.85 and proportional reduction in inconsistency (PRI) level of 0.75 (Campbell et al., 2016; Crilly, 2011; Fiss, 2011). We then used the Quine–McCluskey algorithm to reduce the numerous complex causal conditions into a simplified set of pathways. This step also distinguishes between core and peripheral attributes of the configurational-based results. Core attributes are those for which the evidence indicates a strong causal relationship with the outcome, while peripheral attributes are those for which the evidence for a causal relationship with the outcome is weaker (Fiss, 2007, p. 394).

Table 2
Pathways to large and small informal sector (total).

	Large				Small	
	Poor, Welfare-Fragile States				Democratic, Fully-Strong States	
	1a	1b	1c	1d	2a	2b
Population		•		⌀	⌀	
GNI per Capita	⌀	⌀	⌀	⌀		•
Democracy	⌀	•			●	●
Regulatory	⌀		⌀	⌀	●	●
Social-Welfare	∅	∅	∅	∅	●	●
Security		⌀	⌀		●	●
Raw Coverage	0.63	0.19	0.62	0.38	0.42	0.52
Unique Coverage	0.02	0.02	0.02	0.01	0.08	0.19
Consistency	0.90	0.93	0.89	0.89	0.97	1.00
Solution Coverage	0.80				0.61	
Solution Consistency	0.89				0.98	
Necessary Conditions(s)[a]	Low Welfare Capability; Low GNI per Capita				High Welfare Capability	

Legend: ● Core Condition Present; ∅ Core Condition Absent; • Peripheral Condition Present; ⌀ Peripheral Condition Absent.
[a]Causal attributes with consistency > 0.85 and coverage > 0.50.

Table 3
Pathways to large and small subsistence-oriented informal sectors.

	Large			Small	
	Poor, Fully-Weak States			Democratic, Fully-Strong States	
	3a	3b	3c	4	5
Population			⌀	∅	
GNI per Capita	⌀	⌀	⌀		●
Democracy		⌀		●	●
Regulatory	∅	∅	∅	●	●
Social-Welfare	∅	∅	∅	●	●
Security	⌀			●	●
Raw Coverage	0.65	0.68	0.41	0.39	0.50
Unique Coverage	0.24	0.02	0.04	0.05	0.18
Consistency	0.89	0.86	0.86	0.94	0.99
Solution Coverage	0.78			0.68	
Solution Consistency	0.86			0.94	
Necessary Conditions(s)[a]	Low Welfare Capability; Low GNI per Capita			High Welfare Capability; High Regulatory Capability	

Legend: ● Core Condition Present; ∅ Core Condition Absent; • Peripheral Condition Present; ⌀ Peripheral Condition Absent.
[a]Causal attributes with consistency > 0.85 and coverage > 0.50.

4. Results

Tables 2–4 present the results of the three separate sets of fs/QCAs we conducted for this study. Table 2 provides the results for the configurational pathways associated with large and small informal sectors. Tables 3 and 4 then break total informality into its constituent parts to look independently at large and small subsistence-oriented informal sectors (Table 3), and large and small growth-oriented informal sectors (Table 4). Consistent with other fs/QCA authors (e.g., Campbell et al., 2016; Crilly et al., 2012; Judge et al., 2014), we denote the presence of a condition within a configurational pathway with a black circle (●) and the absence of a condition along a pathway with a slashed circle (∅). A blank space with no circle denotes a condition that may be either present or absent in a particular configuration. The size of the circles indicates whether the element is core or peripheral; a large circle (whether black or slashed) denotes a core condition, while a small circle indicates a peripheral condition. Many of the pathways identified in the Tables share core conditions, and only differ in their peripheral conditions. We thus group these pathways together and number them 1a, 1b, etc. Finally, we indicate which attributes passed the necessity tests at the bottom of each table.

Table 4
Pathways to large and small growth-oriented informal sectors.

	Large					Small
	Large Emerging Economies		Autocratic, Regulatory-Capable States	Regulatory-Capable, Welfare-Fragile States		Rich Democracies
	6a	6b	7	8a	8b	9
Population	●	●	⌀	•	⌀	
GNI per Capita	∅	∅	•	⌀	⌀	●
Democracy		⌀	∅	•	•	●
Regulatory	⌀		●	●	●	•
Social-Welfare	●	●	•	∅	∅	•
Security	∅	∅		⌀	⌀	•
Raw Coverage	0.17	0.18	0.10	0.11	0.11	0.49
Unique Coverage	0.01	0.02	0.06	0.03	0.06	0.49
Consistency	0.84	0.85	0.91	0.86	0.85	0.90
Solution Coverage			0.36			0.49
Solution Consistency			0.85			0.90
Necessary Conditions(s)[a]			None			None

Legend: ● Core Condition Present; ∅ Core Condition Absent; • Peripheral Condition Present; ⌀ Peripheral Condition Absent.
[a]Causal attributes with consistency > 0.85 and coverage > 0.50.

4.1. Pathways to large and small informal sectors

As shown in Table 2, the fs/QCA identified four pathways associated with large informal sectors. In examining these configurations, we observe that they are nearly identical to each other; the only difference lies on their peripheral conditions. We thus group them together and label them Pathways 1a through 1d. Examples that fit these configurations include Afghanistan (Pathway 1a), Ghana (Pathway 1b), Bangladesh (Pathway 1c), and Mali (Pathway 1d). Low social-welfare capability had a consistency of 0.86 and a coverage of 0.87, while Low GNI per capita had a consistency of 0.93 and a coverage of 0.72; both attributes thus passed the necessity test. Given these scores, the shared core condition of low social-welfare capability, and the shared peripheral condition of Low GNI per capita across all 4 pathways, we label the set of countries associated with large informal sectors as "Poor, Welfare-Fragile States". While previous research has proposed that weak regulatory capability represents a critical institutional condition that explains the presence of large informal sectors across the world, our analysis identifies the presence of poverty and low state welfare capabilities as necessary causal conditions in explaining these outcomes.

As further shown in Table 2, our analysis identified two configurations associated with small informal sectors (or large formal sectors). In examining these pathways, we again observe that the configurations are nearly identical to one another, with the only differences falling on the peripheral conditions. We thus label them Pathways 2a and 2b. Examples that fit these configurations include Denmark (Pathway 2a) and the U.S. (Pathway 2b). Consistent with our finding of low social-welfare capability as a necessary condition for a large informal sector, our results indicate that high social-welfare capability is also a necessary condition for the presence of a small informal sector, as this attribute passed the necessity test with a consistency score of 0.87 and a coverage score of 0.84. However, no single attribute represents a sufficient condition. Instead, all three state capabilities (social-welfare, regulatory, and security), plus democracy, are conjointly present as core causal conditions. Given these shared attributes, we label the set of countries identified along these pathways as "Democratic, Fully-Strong States". While these countries mostly correspond with countries commonly referred to as developed or advanced economies (see, for instance IMF, 2016), developed-country status is not required for inclusion in this set of fully-strong democracies; Bulgaria, Costa Rica, and Uruguay are also part of this set of country cases.

4.2. Pathways to large and small subsistence-oriented informal sectors

We show the fs/QCA of the institutional conditions linked to the size of the subsistence-oriented informal sector in Table 3. Since the pathways associated with this outcome are identical except for their peripheral conditions, we label these configurations Pathways 3a through 3c. Exemplary country-cases include Bangladesh (Pathway 3a), Nigeria (Pathway 3b), and Mali (Pathway 3c). The table shows pronounced similarities between the size of the informal sector broadly and the size of the subsistence-oriented informal sector more narrowly; both analyses identified low social-welfare capability as a core condition and low GNI per capita as a peripheral condition. These attributes also passed the necessity test as in the fs/QCA of the overall informal sector; low social-welfare capability had a consistency score of 0.86 and a coverage score of 0.84, while low GNI per capita had a consistency score of 0.98 and a coverage score of 0.72. The key difference between the pathways associated with large subsistence-oriented informal sectors, compared to those associated with large total informal sectors, rests with low regulatory capabilities, which appeared as a core condition in all three subsistence-oriented configurations. Given these conditions, and in contrast to the set of "Democratic, Fully-Strong States", we refer to the set of countries that sit along this pathway as "Poor, Fully-Weak States". All configurations possess weakness along at least two core institutional conditions without showing strength on any state capability, as either a core or peripheral condition.

The primary pathways to small subsistence-oriented informal sectors strongly resemble those associated with low levels of the total informal sector; Pathway 4 resembles Pathway 1a, while Pathway 5 resembles Pathway 1b, except that the peripheral conditions in Pathways 1a and 1b became core conditions in Pathways 4 and 5. The similarities across these analyses suggest that the countries with the smallest subsistence-oriented informal sectors are also those with small informal sectors generally. The exemplary countries that fall along these pathways support this assessment, as they also include the set of countries previously identified as "Democratic, Fully-Strong States", such as Denmark and the United States.

4.3. Pathways to large and small growth-oriented informal sectors

We show the fs/QCA of the formal institutional conditions associated with the size of the growth-oriented informal sector in Table 4. In our two previous analyses, we found a constellation of shared institutional characteristics; the largest formal sectors of the world were defined by strength across multiple domains (Table 2) and the largest subsistence-oriented sectors were defined by weakness across the same ones (Table 3). In contrast, our results in Table 4 are not causally symmetric to either of the previous two tables, but instead are best conceptualized as hybrid institutional configurations that display elements of both institutional strength and weakness. In examining the pathways to a large growth-oriented informal sector, state fragility along some dimensions seems to create a pull for a large number of

entrepreneurs to enter into the informal rather than formal sector, while strength along other dimensions limits the full force of the push into the subsistence-oriented informal sector.

We first examine Pathways 6a and 6b, which we label "Large Emerging Economies". Since the only difference across these two configurations falls on the peripheral conditions, we treat them as a single set of country conditions. As shown here, these countries are defined by their configuration of large populations and relatively low incomes. In addition, the institutional-based core conditions include strength in social-welfare capabilities and weakness in security capabilities. We label these pathways "Large Emerging Economies" because the countries that populate them represent many of the same emerging economies that are often identified in the management literature (Hoskisson et al., 2000), such as Brazil and Mexico (Pathway 6a), and China and Russia (Pathway 6b). As indicated in the table, the set of countries that fall within these two configurations also possess relatively large populations.

As shown in Pathway 7 of Table 4, our results further identified an additional hybrid institutional configuration associated with a large growth-oriented informal sector that we label "Autocratic, Regulatory-Capable States". These countries are characterized by strong regulatory capabilities, but weak democracy. Examples include Singapore, Bahrain, Oman, Qatar, and Kuwait. While the states in this set of countries do not possess strong social-welfare capabilities, they retain an ability to implement effective legal regulations, even though they are autocracies. The countries on these pathways support Autio and Fu's (2015) proposition that a country's regime type may influence the size of the informal sector, as authoritarian political systems may create a specific pathway of entry into the informal sector as a means to avoid political oversight.

We label the two configurations found on Pathways 8a and 8b in Table 4 as "Regulatory-Capable, Welfare-Fragile States" because their hybrid institutional configurations are defined by strengths on the regulatory dimension and weakness on the welfare dimension. Again, these two pathways are identical, except for their peripheral conditions. Pathway 8a includes South Africa and Colombia, while Pathway 8b includes Namibia and Botswana. Interestingly, many of these countries sit at the southern tip of Africa. In these cases, the absence of strong social-welfare capabilities seems to pull entrepreneurs into the informal sector, while strength in regulatory capabilities supports participation in the growth-oriented part of the informal sector.

Pathway 9, which represents the only configuration we found that is associated with low levels of growth-oriented informality, is markedly similar to low-level pathways in our other results as well (Pathways 2a, 2b, 4, and 5). In short, all pathways to low levels of every type of informal entrepreneurial outcomes we examine are similar, but the opposite is not true. That is, viewing the set of individuals that operate outside the formal sector as a homogeneous population may fail to account for wide variation in the kinds of informal entrepreneurs found across national settings.

4.4. Robustness checks

We ran numerous robustness checks to examine the sensitivity of our findings to our calibration strategy. For instance, we changed the upper and lower thresholds for all variables from the 75th and 25th percentiles to the 80th and 20th percentiles; we changed the crossover points from the sample median to the average; and we changed the crossover for GNI per capita to the global median, with the upper and lower thresholds at the 75th and 25th percentiles.

Overall, the primary conclusions remain the same across all the analyses: (1) each of the configurations associated with large subsistence-oriented informal sectors are defined by weakness across the dimensions of state capacity; and (2) each of the configurations associated with large growth-oriented informal sectors are defined by a hybrid of strengths on some dimensions and weaknesses on others.

At the margins, some causal conditions switched between blank, core, and peripheral status. For instance, in the robustness check that used averages, rather than medians, as the crossover points, social-welfare capability remained a present core condition in Pathways 6a and 6b (large emerging economies), but the core absent condition switched from the security to the regulatory dimension. Moreover, some configurations that we labeled a, b, c, etc. because they possessed the same core conditions and differed only on their peripheral conditions collapsed into a single pathway, while some single pathways split into multiple ones that possessed the same core conditions and differed only on their peripheral conditions. Overall, the pathways named in the original analysis persisted across the robustness checks.

5. Discussion

To further interpret our configurational-based results, we turn to the idea of causal heterogeneity that led us to adopt fs/QCA over alternative methodologies. In support of previous research that separates growth-oriented and subsistence-oriented forms of informal entrepreneurship into distinct subpopulations (Berner et al., 2012; House, 1984; Williams and Nadin, 2010), our results provide empirical evidence that these two types of informal entrepreneurship should not be bundled into a single theoretical or empirical construct called "the informal sector". Such a broad label may be a misnomer and a source of confusion, since the institutional conditions that shape entrepreneurial outcomes in each sector appear to be as different from one another as they are from the formal sector.

We also find that a cross-national, configurational-base perspective provides a framework to delineate a set of relevant boundary conditions that differentiate between separate sub-populations of informal economies. To explain these country-level results, we return to the two research streams that both point to weak formal institutions to explain the impact of national systems on informal entrepreneurial outcomes; one looks at how weakness in the formal institutional context creates an opportunity-based pull into the informal sector (Webb et al., 2013, 2009) and the other at how weakness in the formal institutional context creates a necessity-based push out of the formal economy (Alvarez and Barney, 2014; La Porta and Shleifer, 2014). Our configurational-based findings support an integrative model that accounts for both pull and push scope conditions — that is, national systems shape both the extent to which opportunity-seeking entrepreneurs choose to enter into the informal economy and the degree to which subsistence-oriented entrepreneurs enter the informal economy because of a lack of alternatives.

From this integrative perspective, the interaction of multiple formal institutional characteristics, rather than only one, explains our hybrid-based results: the set of countries with the largest growth-oriented informal economies across the world do not completely fit either the subset of countries with fully-strong or fully-weak institutions, but instead represent a set of hybrid cases that possess a constellation of both strengths and weaknesses across multiple domains. In the following sections, we examine the implications of our configurational-based findings for the comparative analysis of national systems of informal entrepreneurship and for the design of policies that provide aid and support to those who live and work in the informal sector.

5.1. The formal institutional characteristics of informal entrepreneurship in Large Emerging Economies

One implication of our comparative analysis rests in the constellation of institutional characteristics that separate the "Large Emerging Economies" subpopulation identified in Pathways 6a and 6b of Table 4 from other country sub-populations. To further illustrate this particular set of institutional-based configurations, Table 5 identifies the countries that the fs/QCA identified as exemplary cases along these pathways.

The table also shows the size of each country's growth-oriented informal sector as a percentage of the total economy, based on Loayza's (2016) estimates, and each country's scores on each causal dimension used in the fs/QCA (regulatory, social-welfare, security, democracy, GNI per capita, population). We also provide the average and variance for the entire set of countries on each of these measures. The table first shows wide variation along the regulatory dimension; one-third of the countries sit above the global mean, while two-thirds sit below it; and the variance of 0.43 is relatively high. Moreover, while the countries show some variance for security capabilities (0.18), they all fall below the global mean. Yet, the most striking feature of this set is the strong consistency on social-welfare; not only does every country sit above the global mean, but the variance across them is negligible (0.003).

To explore the implications of these results for comparative institutional analysis, we focus on the presence of Russia and China within this subpopulation because many researchers locate studies of the informal economy in these country settings. For example, comparative researchers often characterize the institutional environment of Russia and China as "highly inefficient and weak" (Batjargal et al., 2013, p. 1040–1041) or as full of institutional voids (Puffer et al., 2010) to explain why economic actors frequently rely on informal contracts and ties in these settings. In contrast, our findings caution against a comparative institutional framework based solely on what is missing in emerging economies without accounting for what is concurrently present as well (for a similar critique, see Mair et al., 2012). As compared to countries where the economy is primarily formal, such the U.S. or Denmark (see Pathways 2a and 2b of Table 2), Russia's and China's larger informal economy may be explained by the relative absence of multiple institutional characteristics. However, when compared to the countries with the largest subsistence-oriented informal economies in the world, state capabilities in China and Russia appear quite strong. In our analysis, the set of countries identified in Table 3 as "Poor, Fully-Weak States", such as Mali and Niger, better fit the conditions associated with a uniform set of highly inefficient and weak institutions than do the cases of Russia or China.

Within a full global comparison, our results indicate that the hybrid institutional characteristics of many large emerging economies represent relatively unique national settings for the study of informal entrepreneurship, since they differ in kind from countries whose governments possess uniform weakness across all functions. Conceptualizing these institutional environments as fully weak, or a void, therefore does not account for the wide diversity of formal institutional settings found across the developing world, and therefore fails to capture the full range of institutional-based pathways into the informal economy. For instance, although others have noted that the governments of Russia and China may possess weaker regulatory capabilities than is typically found in the countries with the largest formal economies of the world, our results indicate that they nonetheless retain the capabilities to provide basic welfare services that support growth-oriented entrepreneurship in the informal sector.

Research that identifies weak social welfare provision as a driver of entry into the subsistence-oriented informal sector helps to interpret our results. While work in this tradition typically points to global averages to show that the actors who live and work within the informal economy lack the education, health, and experience to operate growth-oriented ventures (Alvarez and Barney, 2014; Bruton et al., 2015; La Porta and Shleifer, 2014), our findings indicate that the types of informal entrepreneurs that enter into the informal sector likely differ significantly across national settings. For example, given China's and Russia's ability to deliver basic education, healthcare, and infrastructure services, informal entrepreneurs in these settings are likely to benefit from a greater set of skills and opportunities than those that operate in countries unable to provide similar advantages. Thus, while our results in Table 3 support the proposition that weak social-welfare capabilities leads to a large subsistence-oriented sector, our finding of a welfare-capable pathway to large growth-oriented informal sectors

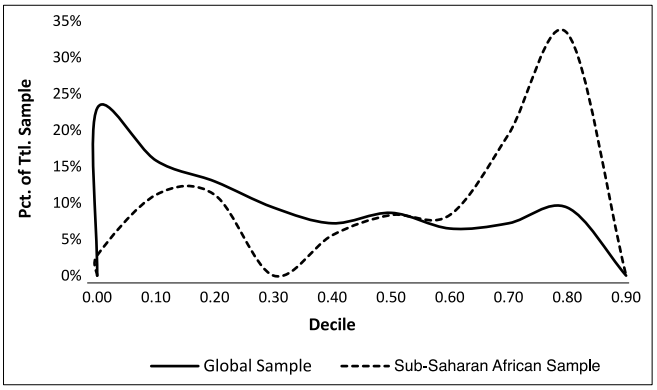

Fig. 1. Frequency distribution chart for the size of the subsistence-oriented informal sector.
Source: Loayza (2016).

presents a less universal argument that illustrates the reverse case as well: participants in the informal sector are better able to pursue growth-oriented opportunities in locations where the state is able to provide complimentary social-welfare services that both limit mass entry into the informal sector and enable those who do enter to pursue growth-oriented objectives.

5.2. The formal institutional context of informal entrepreneurship in Sub-Saharan Africa

We now further interpret our finding in Pathways 8a and 8b that identify another subpopulation associated with large growth-oriented informal sectors primarily located within a set of countries in Sub-Saharan Africa. South Africa is found on Pathway 8a in Table 4 of our growth-oriented analysis, while Namibia and Botswana are found on Pathway 8b. To further examine this result – both with our global sample and within Sub-Saharan Africa itself – we ran a number of additional analyses based on the countries located in Sub-Saharan Africa.

We first report a comparison of the frequency distribution of country cases in the full global sample to those in the Sub-Saharan African subsample, as it provides a strong illustration of the importance of population-level boundaries in shaping the diversity of observed outcomes when comparing national systems of informal entrepreneurship. Figure 1 overlays the frequency distribution of all 138 countries in our global sample (solid line) over the frequency distribution of the 32 Sub-Saharan African countries in our subsample (dashed line).[2] As shown by the solid line, the plurality of country cases (23%) in the global sample possess small to non-existent subsistence-oriented informal sectors, with only a handful of outliers falling in the far-right tail. In contrast, the plurality of Sub-Saharan African countries shown by the dotted line (33%) possess large subsistence-oriented economies, with only a handful of outliers in the far-left tail.

Based on this observation that Sub-Saharan Africa follows a different frequency distribution than the rest of the world, we next ran an additional set of fs/QCAs on this subsample to see how this change in the diversity of country cases impacts our overall results. For this analysis, we recalibrated all our data into membership scores for each measure based only on the countries in this subpopulation, following the same procedures as discussed for the full global sample. Our results identify only one pathway to large growth-oriented informal

[2] To create the frequency distribution charts, we counted the number of countries in each 0.10 increment (or decile) of our measure for the size of the subsistence-oriented informal sector used elsewhere in the paper. We express frequency as the percentage of the total number of countries in each decile.

Table 5
Exemplary country cases of large emerging economies.

	Growth Informality	Regulatory	Social Welfare	Security	Democracy	GNI per Capita	Population (millions)
Brazil	20%	−0.14	0.52	−0.45	0.68	$8840	208.00
China	19%	0.00	0.53	−0.90	−1.38	$8250	1380.00
Iran, Islamic Rep.	23%	−0.65	0.54	−1.02	−1.39	$5470	80.30
Malaysia	23%	0.68	0.66	−0.15	−0.11	$9860	31.20
Mexico	44%	−0.12	0.57	−0.20	0.23	$9040	128.00
Russian Federation	32%	−0.50	0.51	−1.10	−1.15	$9,720	144.00
Sri Lanka	36%	−0.06	0.56	−0.17	0.12	$3850	21.20
Thailand	25%	0.13	0.52	−0.71	−0.77	$5640	68.90
Venezuela, RB	36%	−1.69	0.44	−1.18	−0.87	$11760	31.60
Group Mean	29%	−0.26	0.54	−0.65	−0.51	$8048	232.58
Standard Dev.	1%	0.43	0.00	0.18	0.58	$2539	434.68

Sources: Size of the growth-oriented informal sector as a percentage of the overall economy: Loayza (2016); Regulatory, Social Welfare, Security, and Democracy: factor analysis reported in Ault and Spicer (2020); GNI per Capita and Population: World Bank (2019). All data are from 2016.

Table 6
Comparison of Denmark, Botswana, and Mali.

	Population (millions)	GNI per Capita	Democracy	Regulatory	Soc.-Welfare	Security	Growth Oriented Informality	Subsistence Oriented Informality	Total Informality
Denmark	5.73	$57020	1.59	2.07	1.16	1.10	0.07	0.05	0.12
Botswana	2.25	$6750	0.72	0.74	−0.15	0.81	0.73	0.10	0.83
Mali	1.80	$770	−1.33	−0.69	−1.83	−1.46	0.07	0.82	0.89

Sources: (1) World Bank (2019): Population, GNI per Capita; (2) Ault and Spicer (2020): Democracy, Regulatory, Social-Welfare, Security; (3) Loayza (2016): Size of Growth-Oriented Informal Sector, Size of Subsistence-Oriented Informal Sector, Total Size of the Informal Sector. All data from 2016.

sectors (characterized by the presence of high GNI per capita, strong democracy, strong regulatory capabilities, and strong social-welfare capabilities). The solution coverage for this test was 0.43 and the solution consistency was 0.96. The Sub-Saharan African countries found on Pathways 8a and 8b of the global sample – South Africa, Botswana, and Namibia – were identified on this pathway as well. We also found one pathway to large subsistence-oriented informal sectors defined by weak institutions across multiple dimensions (i.e., low GNI per capita, weak regulatory capabilities, and weak social-welfare capabilities). The solution coverage for this test was 0.48 and the solution consistency was 0.92. As in our global sample, these results further illustrate that country conditions characterized by uniform institutional weakness across multiple state functions are associated with national settings with large subsistence-oriented informal sectors.

We also find that the country pathways to large growth-oriented informal economies in this subsample are best characterized by uniform institutional strength across all dimensions, rather than the hybrid institutional configurations identified in our global analysis. To further explore the dimensions of institutional-based diversity identified across our two analyses, our final supplemental analysis entails a simple comparison of two African countries: Botswana and Mali, plus one country from the broader global sample, Denmark. We show the full set of conditions underlying these national comparisons in Table 6. A comparison of Mali and Botswana illustrate that these two countries may possess similar sized informal sectors that are above 80%, but they differ strongly in the types of entrepreneurs that enter into the informal sector. Botswana is also stronger on every institutional dimension than Mali, thus illustrating the reason why we find a configuration of strength across multiple dimensions in the pathways toward large growth-oriented sectors within our Sub-Saharan African comparison.

Adding Denmark as a second anchor in the comparison between Botswana and Mali illustrates our finding of hybrid institutional configurations associated with the growth-oriented informal sector in the full global sample but of uniform institutional-based strength in the Sub-Saharan subpopulation. For instance, Mali and Denmark possess similarly sized growth-oriented informal sectors (7% of the labor force), but for completely different reason. Denmark possesses a small growth-oriented informal sector because most individuals work in the formal sector, while Mali possesses a small growth-oriented informal sector because a large number of people are pushed into the subsistence-oriented informal sector. The hybrid-based institutional drivers of large growth-orientated sectors can therefore only be recognized when both Denmark and Mali are included as anchors in the underlying sample. If we compare Botswana only to Denmark, without including Mali, then weaker formal institutions will be associated with a larger growth-oriented informal sector. Similarly, if we compare Botswana only to Mali, without including Denmark, then stronger formal institutions will be associated with a larger growth-oriented informal sectors. We can explain Botswana's location along a pathway characterized by hybrid institutional configurations in our global analysis because the relevant comparative points expand to include both alternative benchmarks.

5.3. Policy implications

To explore the implications of these findings for policy, we begin with Berner et al.'s (2012, p. 382) observation that: "because most existing [policy] interventions are based on the implicit assumption that all entrepreneurs are growth-oriented, they often fail to address the specific needs of survivalists". While previous researchers have compared the needs of subsistence-oriented and growth-oriented entrepreneurs primarily at the individual and organizational levels of analysis (Alvarez and Barney, 2014; Bruton et al., 2015; Godfrey, 2011; House, 1984; Williams and Nadin, 2010), our findings of the constellation of formal institutional conditions associated with the largest subsistence-oriented economies of the world identifies a range of country-level issues that also need to be considered when aligning policies to account for the needs of survivalists.

We first observe that the policy of transitioning entrepreneurs from the informal to the formal economy may not fit the institutional-based conditions of countries with large subsistence-oriented informal sectors. For instance, our three-country comparison in Table 6 identifies two pathways out of the subsistence-oriented informal economy: one toward the formal economy, as illustrated by Denmark, and the other toward the growth-oriented informal sector, as illustrated by Botswana (and the other countries on Pathways 6a to 8b in Table 4, such as Russia or China). Yet while numerous studies explore the effectiveness of policies designed to transition entrepreneurs from the informal to the formal economy (Assenova and Sorenson, 2017; Autio and Fu, 2015; Dau and Cuervo-Cazurra, 2014; Sutter et al., 2017), few examine the effectiveness of policies that help subsistence-oriented informal entrepreneurs transition into the growth-oriented informal sector.

Furthermore, our configurational-based analysis suggests that policies aimed to transition entrepreneurs out of the informal sector altogether may have little effect, and may actually cause harm, in countries with the largest subsistence-oriented informal sectors. For instance, we find that the weak provision of social-welfare services pushes undereducated and unprepared individuals into the informal sector out of desperation. In these countries, implementing policies that increase the cost of operating in the informal sector and/or lower the costs of operating in the formal sector are unlikely to have much effect on the levels of subsistence-oriented entrepreneurship, since the very reason many of these actors enter into the subsistence sector in the first place is because they had been previously unable to find employment within the formal sector. As La Porta and Shleifer (2014) observe, few subsistence-oriented actors are capable of entering into the formal sector even when formal regulatory barriers are reduced.

Loayza (2016, p. 1857) similarly argues that "if [informality] is perceived solely as the result of weak enforcement, then the advice may be to strengthen monitoring and harden penalties against informal firms, which could result in worse problems — unemployment, self-employment and a further reduction in the size of firms". Strengthening the formal rules may raise the costs to subsistence entrepreneurs of operating in the informal sector without providing the institutional support to allow them to compete in the formal sector.

Overall, our analysis points to the need to align policies to fit the constellation of formal institutional conditions that extend beyond the regulatory domain. For instance, our results suggest that consideration for the needs of survivalists includes recognizing national diversity in the capabilities of states to provide basic welfare services, both as an independent function and in configuration with other types of institutional strengths and weaknesses. While we have used the example of Mali as a country with a large subsistence-oriented informal economy in our comparative analysis, Collier (2009, p. 219) makes a similar observation about the correlation between systemic institutional fragility and underdevelopment in the case of Somalia: "Although for a period economic fashion favored 'minimal' government, manifestly Somalia has been below whatever this minimum might be. While Somalia currently embodies the extreme, there is a continuum of states in which a key obstacle to development is that the state is virtually absent". Our analysis also suggests that designing policies that fit the needs of survival-based entrepreneurs in the informal sector also requires better understanding the continuum of states in which entrepreneurship is embedded.

5.4. Future research and limitations

Our results indicate a number of important avenues for future research. For instance, our analysis identified autocracy as a core condition on Pathway 7 that identifies a set of regulatory-capable autocracies (Singapore, Bahrain, Oman, Qatar, and Kuwait) that possess relatively large, growth-oriented informal sectors. In this case, autocracy seems to push workers into the informal sector, even in the presence of otherwise strong regulatory capabilities. Other than Autio and Fu's (2015) claim that autocracy increases the size of the informal sector, however, we were unable to find other research into the mechanisms that explain the effect of autocracy on informal entrepreneurship, thus representing one important direction for additional research.

An additional avenue for future research is to extend the application of methodological tools designed to recognize heterogeneous causal mechanisms and subpopulations to other levels of analysis and contexts. While an advantage of our large-N, fs/QCA rested in the wide diversity of national cases included in our analysis, a limitation of our broad scope meant that we were unable to include within-country differences, such as comparisons across firms, communities or regions. Our focus on the formal institutional context of informal entrepreneurship also constrained our ability to include additional sources of social, historical, and cultural diversity into our analysis, either as individual causal conditions or, just as importantly, as additional systemic components that shape entrepreneurial outcomes across countries. Our separate analysis of Sub-Saharan Africa further illustrates that the relative pulls and pushes of the formal institutional environment likely differ across geographies, thus suggesting a need for further analysis of subpopulations of country cases across different global regions as well. While additional regional, industry, and firm-level research is needed to further differentiate between the wide diversity of informal entrepreneurs found across the world, the methodological concern of delineating the boundaries between relevant subpopulation of cases, rather than assuming a priori that scope conditions are already known and understood, is likely to remain a central issue in advancing the comparative analysis of national systems of entrepreneurship.

Credit authorship contribution statement

Both authors contributed equally to conceptualization, writing, methodology, visualizations, and formal analysis.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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