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<https://doi.org/10.1057/s41599-023-01951-0>

OPEN

A historical perspective on informal institutional and international entrepreneurship

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In this paper, a historical perspective is taken to investigate the variations in institutional and international entrepreneurship that occur throughout Africa. Drawing on the institutional theory of international entrepreneurship, we introduce ethnic fractionalization as an informal institution that influences new venture internationalization in African countries. Further, we identify the historical traumatic shock exerted by the epidemic disease spread by tsetse flies as the driver of the relationship between ethnic fractionalization and new venture internationalization. Based on a sample of 33,621 firm-year observations covering 40 African countries, Our empirical findings provide important insights into international entrepreneurship in Africa and offers a theoretical extension into the historical origins of informal institutions.

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Introduction

International entrepreneurship, which is defined as the discovery, enactment, evaluation, and exploitation of opportunities in foreign markets (Oviatt and McDougall, 2005), is the result of a new venture's goal of gaining a significant competitive market advantage through cross-border transactions (Dana et al., 2022; Reuber et al., 2018; Baier-Fuentes et al., 2019; Salamzadeh et al., 2022). Previous research has adopted institutional theory—with a focus on institutional structure at the national level—to explain the variation in international entrepreneurship that is observed across countries (Nasra and Dacin, 2010; Roig et al., 2020; Terjesen et al., 2016). The internationalization of new ventures is likely to be driven by supportive government policies (De Clercq et al., 2008), mature financial systems (Alhorr et al., 2008), and entrepreneurial norms (Muralidharan and Pathak, 2017) in those ventures' home countries. However, Africa has been largely neglected by the literature on comparative international entrepreneurship, and because most research on this subject has been conducted in the Global North, including Europe, the US, and East Asia, its generalizability to Africa is limited (Baier-Fuentes et al., 2019; Saedikiyah et al., 2017). Considering Africa's increasing economic importance, it is both critical and promising to examine the variants of international entrepreneurship across the continent.

Within the extant literature on international entrepreneurship, the role of informal institutions in motivating or constraining the internationalization activities of new ventures has been investigated (Korsakienė et al., 2015; Muralidharan and Pathak, 2017). Within the informal institutions that have been investigated in previous studies, a specific focus has been placed on culturally shared understandings that are associated with cultural values and social expectations about appropriate actions that are based on the dominant practices or norms prevalent in a given culture (Buccieri et al., 2020; Dimitratos et al., 2016; de Morais Santos et al., 2022). However, few studies have examined the influence of ethnicity-related informal institutions on international entrepreneurship across countries (Webb et al., 2020). Ethnicity-related informal institutions are important because they may shape the internal conflicts and differentiation among ethnic groups that determine the motivation and capability of pursuing international opportunities (Ilhan-Nas et al., 2011; Mohr and Shoobridge, 2011). In addition, existing works have also neglected to consider the sources of cross-national variations in institutions, and the historical origins of institutions have rarely been modeled when predicting international entrepreneurship. As suggested by Decker et al. (2020), understanding the institutional environments that tend to encourage entrepreneurship is not a trivial task, especially in Africa, because it entails learning the history of the country in which these institutions evolved. Thus, to enrich both institutional and entrepreneurial theory, taking a history-based approach is necessary (Wadhvani et al., 2020). Based on the research gaps identified above, we seek to answer the following question: How do the historical roots of ethnicity-related institutions affect international entrepreneurship?

In this study, we introduce ethnic fractionalization as an informal institution that influences international entrepreneurship, and then we investigate its historical roots in Africa. Ethnic fractionalization reflects a social structure in which the population is segmented into several groups, each with their own distinct language and culture (Posner, 2004). As such segmentation reduces the level of trust and generates a weak culture of cooperation for information-sharing in societies (Knack and Keefer, 1997; Barr and Oduro, 2002), ethnic fractionalization often results in a failure to provide the collective goods necessary for pursuing entrepreneurial opportunities. The low level of trust and limited information-sharing that is common in societies with extensive

ethnic fractionalization also limits the ability of new ventures to enter foreign markets.

In addition, we adopt a historical perspective to explain the variations in institutions and international entrepreneurship that occur across countries in Africa. In particular, we examine the influence of epidemic disease on the modern internationalization of new ventures in the context of the precolonial prevalence of the tsetse fly in Africa. The precolonial prevalence of the tsetse fly, which transmits an epidemic disease that is harmful to both humans and livestock, has been demonstrated to be sufficiently destructive to influence the progress of societal and economic development in Africa (Kiszewski et al., 2004; Packard, 2009). Consistent with the guidelines set out by Klüppel et al. (2018), the tsetse fly's prevalence can help us understand the historical determinants of modern international entrepreneurship.

Following the established evidence demonstrating that the precolonial prevalence of the tsetse fly has imposed persistent consequences for the modern economic growth of African countries (Alsan, 2015; Sarma et al., 2019; An et al., 2022), we expect that this historical disease is influential in the international strategies of new ventures. Furthermore, we suggest that ethnic fractionalization may be one of the main channels linking the tsetse fly to international entrepreneurship in modern times. The prevalence of the tsetse fly increases competition for scarce resources and thus drives the exclusion of outgroup members, which leads to greater ethnic fractionalization. The informal institution of ethnic fractionalization influences the modern internationalization of new ventures due to its path-dependent nature (Ruef, 2020). Therefore, the precolonial prevalence of the tsetse fly can be seen as the historical root of the ethnic fractionalization that now shapes international entrepreneurship in Africa. We test the hypotheses using data from new ventures across 40 African countries.

Our study contributes to the literature on international entrepreneurship in at least three ways. First, we add to the contextualization of international entrepreneurship by examining the influence of informal institutions on new venture internationalization across countries. Existing works on international entrepreneurship have focused on formal institutions (Pinkham and Peng, 2017; Jafari-Sadeghi et al., 2020) and culture (Dimitratos et al., 2016) while neglecting ethnicity-related informal institutions. To complement these prior studies, it is proposed in our work that informal institutions that shape international entrepreneurship can manifest through ethnic fractionalization. We find a negative relationship between ethnic fractionalization and the propensity and intensity of new venture internationalization. Second, a historically driven understanding of entrepreneurship is limited in the extant literature (Klüppel et al., 2018; Wadhvani et al., 2020). We contribute to this important research by exploring the historical roots of those institutions that shape modern international entrepreneurship activities and introducing the role of the precolonial prevalence of the tsetse fly. Our findings show that the precolonial prevalence of the tsetse fly may have led to a high level of ethnic fractionalization, which, in turn, continues to reduce the propensity and intensity of new venture internationalization in Africa. Our historical analysis of traumatic shocks not only deepens the understanding of how historical events and conditions shape modern ventures but also helps to establish causal evidence demonstrating the association between institutions and international entrepreneurship. Taking a historical approach is thus essential to both the empirical study of international entrepreneurship theory and to its advancement. Third, we enrich the literature on entrepreneurship by examining the cross-national differences in new venture internationalization

in Africa, which is an underresearched context in the field of international entrepreneurship (Baier-Fuentes et al., 2019).

Theoretical background and hypotheses

A historical perspective on informal institutions and international entrepreneurship. International entrepreneurship entails the discovery, enactment, evaluation, and exploitation of opportunities across domestic borders to create value (Oviatt and McDougall, 2005; Terán-Yépez et al., 2023). Existing research has identified fundamental differences in the drivers of international entrepreneurship across countries and investigated the implications of these differences to the economic and institutional profiles of the home countries in new venture internationalization (Fainshmidt et al., 2022; Jafari-Sadeghi et al., 2020). Research suggests that political, economic, cultural, and social institutions provide a partial explanation for the cross-national variability of international entrepreneurship (Elish, 2022; Muralidharan and Pathak, 2017; Terjesen et al., 2016).

The extant literature has revealed the structural effect of the institution on international entrepreneurship, and the institutional arrangement is treated as an independent explanatory variable that predicts international entrepreneurship (Aeeni et al., 2019; Terjesen et al., 2016). However, the historical origins of this institutional arrangement are not explicitly incorporated in the prevalent theoretical models. The failure to consider the historical roots of international entrepreneurship robs institutional theory of its predictive power regarding international entrepreneurship across countries. This is due to the endogenously changing nature between institutions and entrepreneurship (Pacheco et al., 2010). The evolution of institutions results from social processes. In these processes, a certain equilibrium among group interaction within societies is achieved and maintained until the present day (Hodgson, 2002). Therefore, a deeper investigation of the historical sources of the institutions that shape international entrepreneurship is necessary to alleviate the endogeneity of institutional effects.

We adopt a historical perspective regarding the institutional effect on international entrepreneurship and specify traumatic shocks as the historical sources of institutional development that continue to shape international entrepreneurship to this day. Our historical approach is consistent with the theoretical tenet that context acts as an environmental constraint on entrepreneurial action (Welter, 2011), and history is the set of antecedent facts that cause these constraints and thus shape entrepreneurial action (Klüppel et al., 2018). Based on the assumption that the range of entrepreneurial opportunity and action is fundamentally limited by context, entrepreneurship scholars have utilized historical examples to explain variations in which contexts regulate and govern entrepreneurial behaviors (Autio et al., 2014). Ruef (2020) shows that the abolition of slavery and the decline of indentured servitude created historical conditions that restricted the level of access to labor, thus explaining the decline in entrepreneurship among the residents of New York that occurred between 1790 and 1850. Following this line of theoretical inquiry in the entrepreneurship literature, we explicitly model the distinct traumatic shocks that have influenced institutional development in heterogeneous ways and have ultimately shaped international entrepreneurship.

Traumatic shocks such as war, disasters, and epidemics can destroy institutions that support entrepreneurship over the long run (Klüppel et al., 2018). Grosfeld et al. (2013) show that the traumatic shock of the Holocaust's dislocation of Jews from the pale of settlement disrupted the development of market-based institutions and thus disrupts modern support for entrepreneurship in Russia. Churchill et al. (2021) also show that the long-

term disruption of economic and social institutions caused by the Vietnam War reduced the propensity for entrepreneurship among Vietnamese individuals. The development of formal institutions dedicated to the protection of property rights, which is crucial for entrepreneurial market entry, is also empirically linked to the traumatic shocks imposed by the industrial revolution (Angeles, 2011) and colonialism (La Porta et al., 2008). In this study, we consider the epidemic disease caused by the tsetse fly in precolonial Africa as the traumatic shock that caused the historically persistent institution of ethnic fractionalization in Africa.

The tsetse fly in Africa. Our empirical investigation focuses on the tsetse fly, which inhabited large parts of precolonial Africa. The tsetse fly transmits a parasite that causes sleeping sickness in humans and nagana in domesticated animals. This parasite is harmful to humans and fatal to livestock. The tsetse fly limits the viable production of livestock and the range of cattle that farmers can keep, thus it reduces crop production and deprives communities of food (Hursey and Slingenbergh, 1995). The sleeping sickness transmitted by the tsetse fly compromises both household labor and general well-being (Onwujekwe et al., 2000). Infected livestock cannot be eaten and therefore fail to provide any nutritional benefit, thus triggering severe food insecurity (Brady, 1975). Until the anti-tsetse campaigns of the colonial period, the prevalence of the tsetse fly caused devastating damage to both the economy and society in the infected regions of Africa.

The tsetse fly provides a useful case study for examining the permanent effect imposed by traumatic shock of epidemic disease on the modern institutional environment and international entrepreneurship. First, a traumatic shock must produce sufficient variation to differentially affect institutions in ways that are more relevant to some ventures than to others (Klüppel et al., 2018). The empirical context is appropriate for addressing this type of identification challenge because the tsetse fly has exerted a widespread impact on Africa, but its effect on specific countries has varied. Alsan (2015) demonstrates through detailed data that the distribution of this insect creates sufficiently large cross-regional variations in disease exposure on the African continent. This has enabled us to explore the ways that this epidemic disease affects institutional development and thus international entrepreneurship while controlling for the country-level environment. Second, the shock must be large and destructive enough to alter the institutional path (Klüppel et al., 2018). Tsetse flies have been described as Africa's greatest curse (Spinage, 2012), since without them, the economic situation of the African continent would be much better (Hunter, 1974). The tsetse fly has also been demonstrated to cause persistent disruption of Africa's financial and agricultural development (Hursey and Slingenbergh, 1995; An et al., 2022). This prompts us to conclude that the tsetse fly may have permanently altered Africa's institutional environment, i.e., in an irreversible and significant way.

Hypotheses

Ethnic fractionalization and international entrepreneurship. In this study, we follow previous literature (Gimede, 2004; Ganotakis and Love, 2012) and investigate both the internationalization propensity and intensity of new ventures in Africa. International propensity is defined as whether or not a new venture enters the international market, and internationalization intensity is the ratio of foreign sales to total sales (Ganotakis and Love, 2012). Extending insights from the literature on institutional theory (Puffer et al., 2010; Adomako et al., 2019), we expect that the ethnic fractionalization within home countries, serving as an

informal institution in Africa (Ilhan-Nas et al., 2011), is negatively related to both the propensity and intensity of new venture internationalization.

First, ethnic fractionalization in home countries reduces information-sharing within those societies, which is a critical dynamic for entrepreneurs to identify and exploit overseas market opportunities (Ratten, 2020). Information-sharing facilitates the ability of new ventures to conduct a timely and preventive assessment of a new outlet market and enables the evaluation and selection of the best adaptation solution for starting a business abroad (Magni et al., 2022; Sui et al., 2019). Information-sharing is thus an important supportive mechanism for international entrepreneurship. However, ethnic fractionalization impedes social cohesion and perpetuates outgroup exclusion within a society, hindering the formation and development of information-sharing norms (Miciukiewicz et al., 2012; van Staveren and Pervaiz, 2017). When faced with a lack of information-sharing in their local contexts, entrepreneurs may find it difficult to accumulate diverse and in-depth knowledge about foreign markets. The paucity of foreign knowledge limits a new venture's capacity to uncover opportunities in foreign markets and evaluate these opportunities for inherent risks and potential value (Mack et al., 2021). Existing evidence also shows that a limited exchange of foreign knowledge in home countries generates a sense of management inertia that drives the enterprise to stay in their home country (Pinho and Martins, 2010; Cahen et al., 2016). Therefore, ethnic fractionalization impedes the local sharing of foreign knowledge, thus reducing a new venture's propensity for and intensity of internationalization.

Second, ethnic fractionalization in home countries leads to a lack of trust in the local context, and such trust is critical for new ventures to mobilize resources and pursue opportunities in foreign markets. Previous studies have demonstrated that trust is difficult to develop in societies beset with high ethnic fractionalization (Delhey and Newton, 2005; Finseraas and Jakobsson, 2012). The more that people live in a society populated by multiple ethnic groups, the higher the level of trust that they place in their own group and the lower the level of trust that they place in the other (Putnam, 2007). Low levels of trust result in entrepreneurial challenges in gaining resources through managerial and business networks because the trust barriers in local contexts undermine the value and potential for cooperation and cohesion (Esteban et al., 2012; Chuah et al., 2013). The lack of trust in a society also discourages investors from providing value-added services (Bottazzi et al., 2016), thus reducing a new venture's chances of obtaining external funding for internationalization (Lu et al., 2023). Thus, the disruption of trust caused by ethnic fractionalization leads to a low propensity for and intensity of new venture internationalization.

Hypothesis 1: Ethnic fractionalization is negatively associated with the (a) propensity and (b) intensity of internationalization of new ventures in Africa.

The tsetse fly, ethnic fractionalization, and new venture internationalization. We argue that the traumatic shock caused by the tsetse fly in precolonial Africa disrupted the historical evolution of institutions, leading to informal institutions that persist today and still influence the internationalization of new ventures. Severe traumatic shocks typically leave behind an institutional disruption and destroy the institutional support needed for business (Angeles, 2011). In the long-term, these shocks can create unfavorable contexts for the pursuit of opportunities (Klüppel et al., 2018). This type of institutional development results from historical traumatic shocks, as we have argued, which serve to ultimately restrict international entrepreneurship from creating value abroad. The above theoretical argument leads to our hypothesis

regarding the link between the precolonial prevalence of the tsetse fly and modern international entrepreneurship and prompts our research on the underlying historical mechanisms of persistent informal institutions that arise from ethnic fractionalization.

We expect that the traumatic shock caused by the tsetse fly in precolonial times was severe enough to alter institutions and discourage international entrepreneurship in modern African countries. Existing literature has demonstrated that the historical diffusion of epidemic disease did have long-term effects on contemporary economic development and activities via the disruption of institutions (Acemoglu et al., 2003; An et al., 2022). Beck et al. (2003) show that the disease environments of the precolonial period have hindered the development of long-lasting institutions, resulting in weak level of private property protection and contract enforcement across the 70 former colonies. Studies have also established that epidemic diseases reduce the level of public trust in authorities, which inhibits the development of institutions that support economic activities and transactions (Blair et al., 2017; Lowes and Montero, 2021). In particular, An et al. (2022) show that epidemic diseases spread by the tsetse fly trigger distrust within society and thus reduce fintech adoption and financial development. Therefore, considering the persistent disruption of the intuitions necessary for entrepreneurship, we conjecture that the precolonial prevalence of the tsetse fly restricted the internationalization of new ventures in modern African countries.

Hypothesis 2: The precolonial prevalence of the tsetse fly is negatively associated with the (a) propensity and (b) intensity of internationalization among new ventures in Africa.

In addition, we suggest that the informal institution of ethnic fractionalization is a historically persistent mechanism that links the precolonial prevalence of the tsetse fly with modern international entrepreneurship in African countries. Specifically, the tsetse fly caused ethnic fractionalization, and ethnic fractionalization continues to discourage the internationalization of new ventures in the present day. First, the epidemic disease caused by the tsetse fly increased the competition for scarce resources and the exclusion of outgroup members, leading to greater ethnic fractionalization in African societies. The tsetse fly also forced an intensive shift from agriculture to hunting and gathering, as domesticated animals are largely absent from infested regions (Gifford-Gonzalez, 2000). The shift from agriculture triggered competition and conflicts for scarce resources such as food and water (Alsan, 2015), and as resources became scarcer, the population became further fragmented along ethnic lines. Moreover, interaction with outsiders was difficult to initiate and sustain because the infectious disease caused by the tsetse fly led inhabitants to maintain a greater social distance from outsiders. The limited social interaction with outsiders exacerbated ethnic fractionalization in countries infested by the tsetse fly. Empirical evidence also suggests that countries with a historically low prevalence of epidemic disease are characterized by more social interaction with outsiders and a high level of social inclusiveness (Nguyen and Peschard, 2003; Figueredo et al., 2012). In contrast, countries with a higher historical prevalence of epidemic diseases tend toward exclusion and the mistrust of outsiders, which is associated with a collective preference for avoiding the risk of infection (Bennett and Nikolaev, 2021).

Second, ethnic fractionalization resulting from the historical prevalence of epidemic disease is persistent over time, so it impacts modern-day international entrepreneurship. Ethnic fractionalization is a manifestation of a collective and behavioral adaptation developed to avoid the risk of disease infection; it is acknowledged as an optimal evolutionary response to local environments beset with epidemic disease (Welburn et al., 2016; Schaub, 2017). Such an adaptation is path dependent, so ethnic

fractionalization can be culturally transmitted over time and passed down through generations (Bisin and Verdier, 2011). Therefore, the current level of ethnic fractionalization that constrains the internationalization of new ventures is linked to the historical prevalence of the tsetse fly in Africa.

Taken together, the theoretical arguments and empirical evidence suggest that the precolonial prevalence of the tsetse fly in Africa explains and predicts the evolution of ethnic fractionalization in African societies. This ethnic fractionalization acts as an informal institution that, in turn, limits new ventures' pursuit of overseas opportunities due to limited information-sharing and trust. It can be empirically identified as being strongly correlated to various levels of new venture internationalization across African countries. Therefore, the following hypothesis is proposed:

Hypothesis 3: The negative relationship between the precolonial prevalence of the tsetse fly and the (a) propensity and (b) intensity of internationalization of new ventures is mediated by the level of ethnic fractionalization in Africa.

Research methods

Data. Our primary dataset comprises firm-level data from the World Bank Enterprise Survey covering the period of 2009–2019. The survey includes responses from owners and managers to questions regarding firm characteristics, business practices, and productivity. Specifically, the World Bank sends contractors to conduct face-to-face interviews with the owners or managers of the sampled firms to ensure the credibility of the survey. The World Bank also uses a globally standardized methodology in this survey that is comparable across countries. Following prior studies on new ventures (Adomako et al., 2018), we define new ventures as firms that have been established for no longer than 10 years. Therefore, when constructing our sample of new ventures, we removed all firms that were over 10 years old at the time of their interview by the World Bank. We then matched the sample with country-level data taken from Harvard Dataverse World, the Global Competitiveness Index report, and the Governance Indicators database. Our final sample consists of 33,621 firm-year observations covering 40 countries.

Measures

New venture internationalization. We use two firm-level dependent variables that are based on responses to the internationalization questions in the survey. The first is internationalization propensity, which indicates whether a firm engages in international sales through export. Internationalization propensity is set to 1 if the firm exported products in the previous fiscal year and 0 otherwise. The second is internationalization intensity, which indicates the extent of a firm's international expansion. Following previous studies on new venture internationalization (Estrin et al., 2008; Manolova et al., 2014), intensity is measured by the proportion of foreign sales in a firm's total sales. Our export-based measure of internationalization is considered appropriate for international new ventures because new ventures are unable to enter or expand into foreign markets in a more committed way, such as the building of manufacturing plants, due to resource constraints during the early stages of development (Manolova et al., 2014).

Ethnic fractionalization. Ethnic fractionalization is measured using data from the Historical Index of Ethnic Fractionalization dataset that is available on the Harvard Dataverse. The dataset lists country-level data regarding levels of ethnic fractionalization going as far back as 1945. The index of ethnic fractionalization reflects the probability that two randomly drawn individuals from

the same country do not belong to the same ethnic group (Alesina and Zhuravskaya, 2011). The index is calculated using the following formula:

$$EF_{ct} = 1 - \sum_{i=1}^n S_{it}^2$$

where EF_{ct} represents the level of ethnic fractionalization of country c in year t , and S_{it} denotes the proportion of the population in country c of ethnic Group i in year t . The long time band of this dataset allows us to capture both the historical and modern levels of ethnic fractionalization within African countries. Regarding the historical level, we use the first available year of ethnic fractionalization data in a given county, which is between 1945 and 1970 for all African countries. The modern measure of ethnic fractionalization uses the most recent measure from the fractionalization index data that corresponds to the firm-level data using country and year identifiers from the World Bank Enterprise Survey.

Precolonial prevalence of the tsetse fly. We measured the precolonial prevalence of the tsetse fly using the tsetse suitability index (TSI) developed by Alsan (2015). TSI is a standardized value for the steady-state population of the tsetse fly that is derived from insect growth models, the grid climate data, and the geospatial data for each location. The exact functional form that links the birth rate and mortality of tsetse flies to climate (such as temperature and humidity) are derived from the scientific results of controlled laboratory experiments. Alsan (2015) uses the historical temperature and humidity data in Africa since 1871 to generate original TSI values at the areal location level. Following previous studies investigating the economic outcome of historical epidemic disease (An et al., 2022), we construct the country-level TSI using regional population-weighted country averages. The country-level TSI shows considerable variations, which range from -2.31 to 1.39 and have a standard deviation of 0.89 .

Control variables. For the analysis, we include two sets of firm-level and country-level control variables that have been used as determinants of new venture internationalization in previous studies. The firm-level control variables include venture size, industry experience, and product quality. Larger firms have more resources that can be allocated to the exploration of foreign markets, so such firms can engage in a greater level of internationalization (Dass, 2000). We thus control for venture size as measured by the natural logarithm of the number of employees. Firms with managers who have more specialized industry experience (Liesch et al., 2011) and those that produce high-quality products are better equipped to compete in foreign markets (Cheng et al., 2020). Therefore, we control for managerial experience using the natural logarithm of the number of years that the manager has been in the industry sector, and we control for product quality using indicators that capture whether the firm has obtained an internationally recognized quality certification. We further control for venture innovation because innovative firms are also competitive in international markets (Autio et al., 2014; Dana et al., 2022). Venture innovation is measured as the percentage of a firm's total sales that are accounted for by sales from the main new or significantly improved product or service. This product or service may be either new to the business or new to the market (Li et al., 2022). In addition, we include a set of dummy variables to control for industry- and year-fixed effects.

The country-level control variables include domestic market size, economic development, and government effectiveness. A larger domestic market can provide firms with more local opportunities, reducing firm incentives to compete in foreign markets (Dimitratos et al., 2004; Eze et al., 2021). Therefore, we

control for domestic market size using a national aggregate measure obtained from the World Bank's Global Competitiveness Index report. Moreover, a better economic and political environment in home countries incentivizes firms to expand into foreign markets and compete globally (De Clercq et al., 2008; Vuong et al., 2021). We control for economic development using the indicator of the natural logarithm of GDP per capita. We use government effectiveness as obtained from the World Governance Indicators by the World Bank database to control for the characteristics of the political environment (Lv et al., 2021).

Model specification. Our first dependent variable, internationalization propensity, is a dummy variable. Thus, we use a probit regression model. Our second dependent variable is internationalization intensity, which is a continuous variable, so we apply an OLS regression model. The problem of sample selection bias may exist in the regression model for internationalization intensity because factors affecting firm decisions to enter foreign markets may also be related to the internationalization extent of those firms. We address this issue by calculating the inverse Mills ratio from the probit regression for internationalization propensity and then including it as a control variable in the OLS regression for internationalization intensity. In addition, we cluster standard errors by country.

To test for the mediating mechanism of ethnic fractionalization, we use the two-stage regression model, which has been used in previous studies to test the long-term effects of historical shocks. In the first stage, precolonial TSI is used to predict the level of ethnic fractionalization. To identify the effect of ethnic fractionalization on the internationalization of new ventures, we adopt the instrument approach using settlement duration, as informed by the work of Ahlerup and Olsson (2012). The instrument variable of settlement is expected to be closely related to ethnic fractionalization but not to be associated with the internationalization of new ventures and other national factors. As the formation of ethnic groups takes considerable time, a longer human settlement duration corresponds with a greater time period for ethnic group formation (Ahlerup and Olsson, 2012). Specifically, settlement duration captures the historical duration

of uninterrupted human settlement on a per country basis, and the dating is based on archeological research. In the second stage, the variation of ethnic fractionalization that is predicted by precolonial TSI and the instrumental variable is further included to predict the modern internationalization of new ventures. To support the mediating mechanism, the first stage should show a significant effect of precolonial TSI, while the second stage should also demonstrate a significant relationship. As a robustness analysis, we use the structural equation modeling approach to identify the mediation levels for ethnic fractionalization, which separates the effects of precolonial TSI on new venture internationalization into two components, namely, a direct effect and an indirect effect, via ethnic fractionalization.

Result

Main findings. Table 1 shows the correlations and descriptive statistics for the study's variables of interest (Tables 2 and 3). The results of our two-stage regression models are presented in Table 4. Model 5 and Model 8 show that historical ethnic fractionalization is negatively and significantly related to new ventures' internationalization propensity ($\beta = -1.984$, $p < 0.001$) and internationalization intensity ($\beta = -0.955$, $p < 0.001$). Similarly, Model 6 and Model 9 indicate that modern ethnic fractionalization has a negative and significant relationship with both internationalization propensity ($\beta = -1.334$, $p < 0.001$) and internationalization intensity ($\beta = -0.856$, $p < 0.001$). This is consistent with our proposed hypothesis that ethnic fractionalization is negatively associated with both the propensity and intensity of the internationalization of new ventures in Africa. Therefore, Hypothesis 1 is supported. We also find that in Model 7 and Model 10, the coefficients of TSI in predicting internationalization propensity ($\beta = -0.103$, $p < 0.01$) and internationalization intensity ($\beta = -0.179$, $p < 0.001$) are negative and significant, indicating that the precolonial prevalence of Tsetse flies has a negative relationship with new venture internationalization propensity and intensity. Hypothesis 2 is thus supported.

The results of the two-stage regression models displayed in Table 4 also support the mediating mechanism of ethnic

Table 1 Sample distribution across countries.

Country	Observations (no.)	Observations (%)	Country	Observations (no.)	Observations (%)
Algeria	600	1.78	Liberia	301	0.89
Angola	360	1.07	Madagascar	977	2.90
Benin	300	0.89	Malawi	673	2.00
Botswana	268	0.79	Mali	1035	3.07
Burkina Faso	394	1.17	Mauritania	150	0.44
Burundi	157	0.46	Morocco	2162	6.43
Cameroon	724	2.15	Mozambique	1200	3.56
Central African Republic	150	0.44	Namibia	580	1.72
Chad	303	0.90	Niger	301	0.89
Côte d'Ivoire	887	2.63	Nigeria	2676	7.95
Djibouti	267	0.79	Rwanda	601	1.78
Egypt	4711	14.01	Senegal	601	1.78
Eritrea	179	0.53	Sierra Leone	302	0.89
Ethiopia	1492	4.43	South Africa	2483	7.38
Gabon	179	0.53	Tanzania	813	2.41
Gambia	151	0.44	Togo	305	0.90
Ghana	616	1.83	Tunisia	1207	3.59
Guinea	150	0.44	Uganda	762	2.26
Kenya	1782	5.30	Zambia	1321	3.92
Lesotho	301	0.89	Zimbabwe	1200	3.56

N = 33,621.

Table 2 Measure of variables.

Name of variables	Variable description	Statistical character of variables	Literature
Venture size	Number of employees	Natural logarithms of employee numbers.	Dass, 2000
Managerial experience	Specialized industry experience of the manager	Natural logarithm of the number of years the manager has been in the industry sector	Liesch et al., 2011
Product quality	Internationally recognized certification of product quality	A dummy indicating whether the firm had an internationally recognized quality certification (0 = No and 1 = Yes).	Cheng et al., 2020
Venture innovation	Intensity of new product sales	Percentage of a firm's total sales represented by sales from the main new or significantly improved product/service.	Li et al., 2022
Domestic market size	The total size of domestic market	Index of domestic market size obtained from the World Bank's Global Competitiveness Index report.	Dimitratos et al., 2004
GDP per capita	GDP per capita	Natural logarithm of GDP per capita	De Clercq et al., 2008
Government effectiveness	Index of government effectiveness	Index of government effectiveness obtained from the World Governance Indicators by the World Bank database	Lv et al., 2021
Fractionalization1	The historical levels of ethnic fractionalization within African countries	Historical Index of Ethnic Fractionalization in 1945	Alesina and Zhuravskaya, 2011
Fractionalization2	The modern levels of ethnic fractionalization within African countries	Historical Index of Ethnic Fractionalization in 1970	Alesina and Zhuravskaya, 2011
TSI	The precolonial prevalence of the tsetse fly	The standardized value for the steady-state population of the tsetse fly derived from insect growth models	Alsan, 2015; An et al., 2022
International propensity	A firm's engagement in international sales through export	A dummy indicating whether the firm exported products in the previous fiscal year (0 = No and 1 = Yes).	Estrin et al., 2008
International intensity	A firm's intensity international sales through export	Proportion of foreign sales in the firm's total sales.	Manolova et al., 2014
Settlement duration	The historical duration of uninterrupted human settlement on a per country basis	Duration of human settlement/10000	Ahlerup and Olsson, 2012

fractionalization in the relationship between the precolonial weprevalence of Tsetse flies and modern new venture internationalization. In the first stage displayed in Model 2 and Model 4, TSI is positively and significantly associated with both the historical and modern levels of ethnic fractionalization ($\beta = 0.101, p < 0.001$; $\beta = 0.084, p < 0.001$). In the second stage, while historical ethnic fractionalization is negatively and significantly related to internationalization propensity ($\beta = -1.984, p < 0.01$ in Model 5) and intensity ($\beta = -1.984, p < 0.01$ in Model 8), modern ethnic fractionalization has significantly negative relationships with internationalization propensity ($\beta = -1.334, p < 0.01$ in Model 6) and intensity ($\beta = -0.856, p < 0.001$ in Model 9). The two-stage regression models support Hypothesis 3, indicating that the negative relationship between the precolonial prevalence of Tsetse flies and the propensity and intensity of the internationalization of new ventures is mediated by ethnic fractionalization in Africa. Our findings from the mediation tests provide further evidence for this. As shown in Table 5, the mediating effects of historical ethnic fractionalization on internationalization propensity ($\beta = -0.41, p < 0.01$) and intensity ($\beta = -0.008, p < 0.05$) are significant, and those of modern ethnic fractionalization show similar patterns for both internationalization propensity ($\beta = -0.043, p < 0.01$) and intensity ($\beta = -0.008, p < 0.05$). In total, the evidence supports the claim that ethnic fractionalization is a historical channel through which the precolonial prevalence of Tsetse flies influences the modern internationalization of new ventures in Africa.

Discussion

Theoretical implications. This study contributes to the literature in three ways. First, we deepen the understanding of

contextualization in the international entrepreneurship literature by highlighting the influence of a specific informal institution on new venture internationalization across countries. We introduce ethnic fractionalization as an informal institution that influences new venture internationalization. Ethnic fractionalization is an informal institution that exerts an impact on international entrepreneurship by shaping the level of information-sharing and trust in African societies (Barr and Oduro, 2002; Posner, 2004). Our findings indicate a negative relationship between ethnic fractionalization and both the propensity and intensity of new venture internationalization. This finding empirically demonstrates the impact of informal institutions on developing countries, complementing the research on formal institutions and offering a more comprehensive framework for explaining how institutions shape international entrepreneurship (Dimitratos et al., 2016; Pinkham and Peng, 2017; Jafari-Sadeghi et al., 2020). Our study thus helps to increase the explanatory value of institutional theory within the study of international entrepreneurship.

Second, we extend the historical perspective on entrepreneurship by exploring the historical roots of those institutions that shape modern international entrepreneurship. Scholars have advocated bringing history back into entrepreneurship research (Decker et al., 2020) because historical analysis “offers opportunities to deepen theorizing and diversify empirical research on strategic entrepreneurship in new ways” (Wadhvani et al., 2020, p. 16). This study introduces the role of the traumatic shock induced by an epidemic disease and employs the precolonial prevalence of the tsetse fly as the measurable predictor to explain the relationship between institutions and the internationalization of modern new ventures. Our theoretical model, in which the history of epidemic disease persistently influences modern

Table 3 Descriptive statistics and correlations.

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Venture size	3.05	1.35	1											
2. Managerial experience	16.25	11.07	0.19	1										
3. Product quality	0.06	0.86	0.09	0.03	1									
4. Venture innovation	0.36	0.28	0.06	0.03	0.02	1								
5. Domestic market size	3.70	1.02	0.09	0.07	0.01	0.07	1							
6. GDP per capita	3.70	2.55	0.06	0.02	0.02	0.09	0.52	1						
7. Government effectiveness	3.57	0.52	0.11	0.11	0.01	0.05	0.32	0.52	1					
8. Fractionalization1	0.57	0.32	-0.17	-0.19	-0.01	-0.01	-0.26	-0.05	-0.25	1				
9. Fractionalization2	0.58	0.31	-0.16	-0.20	-0.01	-0.01	-0.27	-0.04	-0.25	0.92	1			
10. TSI	-0.26	1.04	-0.16	-0.12	0.01	0.01	-0.33	-0.30	-0.31	0.48	0.45	1		
11. International propensity	0.22	0.41	0.28	0.08	0.05	0.06	0.04	0.05	0.07	-0.07	-0.06	-0.11	1	
12. International intensity	0.09	0.24	0.24	0.05	0.05	0.07	0.02	0.01	0.03	-0.06	-0.06	-0.06	0.78	1
13. Settlement duration	13.55	0.74	0.01	0.06	0.01	0.03	-0.03	-0.01	0.02	0.31	0.33	0.08	-0.01	-0.01

Fractionalization1 denotes the historical index of ethnic fractionalization; Fractionalization2 denotes the modern index of ethnic fractionalization; TSI denotes the index of precolonial prevalence of Tsetse fly. N = 33,621.

international entrepreneurship activities through institutions, is congruent with the argument that institutions are historically rooted and result from the path-dependent process of social interaction within societies (Klüppel et al., 2018). Our study is one of the few papers that has linked a historical traumatic shock with the activities of modern firms and may be the first to link such a shock with the internationalization of new ventures.

Our study highlights the importance of integrating a historical perspective to the advancement of international entrepreneurship theory. The historical approach not only enables scholars to study a range of entrepreneurial actions taken in pursuit of international opportunities (i.e., the response mechanisms to domestic market conditions) but also to theorize about the often-neglected areas of economic and social change. As implied by the original work of Schumpeter (1947), history is necessary in theorizing about the ways that entrepreneurship shapes the entire course of subsequent events and influences their long-term outcomes. Therefore, future research on both internationalization and entrepreneurship theory can further consider how historical context and time shape entrepreneurial opportunities, actions, and processes, thus emphasizing the value of history in understanding the variations in the entrepreneurial practices of international new ventures.

Our historical analysis of this traumatic shock also helps to establish causal evidence regarding the association between institutions and international entrepreneurship. Existing studies focused on this relationship have offered inconclusive evidence regarding particular types of institutions. For example, the social desirability of entrepreneurship, which is considered to be an informal institution in home countries, has been found to support the entrepreneurial pursuit of opportunities in foreign markets (Simmons et al., 2019; Jafari-Sadeghi et al., 2020). However, Muralidharan and Pathak (2017) show that the domestic social desirability of entrepreneurship is negatively related to the internationalization of entrepreneurial firms. These conflicting empirical findings may stem from the presence of endogeneity or simultaneity between institutions and entrepreneurship. Using historical traumatic shocks, such as the tsetse fly prevalence used in this study, can help disentangle the inconsistency in the current findings by mitigating any endogeneity concerns, despite the fact that a causal link cannot be firmly established.

Third, our study adds to the nascent literature on international entrepreneurship in Africa. Despite their size and economic importance, African countries have received insufficient theoretical attention in the extant literature. While some recent studies have sought to explore international entrepreneurship activities in specific African countries (Sydow et al., 2022; Adomako et al., 2019), few have examined the cross-national differences in Africa. We answer a recent call for increased attention to African firms and elucidate the challenges faced by African entrepreneurs.

Practical implications. Policy-makers, particularly in developing countries, have largely focused on guiding formal institutions to increase their entrepreneurial opportunities, but the support of formal institutions may not be sufficient to stimulate international entrepreneurship. Our findings have important implications for policy-makers who wish to encourage the early-stage internationalization of domestic firms by influencing informal institutions. Informal institutions are typically historically rooted and only change over long periods of time. Transitioning international entrepreneurship into a key pillar of economic growth may require policies that can compensate for a lack of informal institutional support, such as the lack of information-sharing and trust that is induced by ethnic fractionalization, as suggested in

Table 4 Regression models predicting new venture internationalization.

Variables	Fractionalization1		Fractionalization2		International propensity			International intensity				
	First stage				Second stage							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10		
Fractionalization1					-1.984** (0.551)							
Fractionalization2						-1.334** (0.379)						
TSI		0.101*** (0.001)		0.084*** (0.001)			-0.103** (0.037)					
Venture size	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.287*** (0.033)	0.287*** (0.033)	0.287*** (0.033)	0.121*** (0.031)	0.121*** (0.031)	0.121*** (0.031)	0.121*** (0.031)	-0.179*** (0.039)
Managerial experience	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.003** (0.003)	0.003** (0.003)	0.003** (0.003)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Product quality	0.00 (0.001)	0.00 (0.001)	0.001 (0.001)	0.001 (0.001)	0.063** (0.023)	0.063** (0.023)	0.063** (0.023)	0.034** (0.009)	0.034** (0.009)	0.034** (0.009)	0.034** (0.009)	0.0345** (0.009)
Venture innovation	0.00 (0.001)	0.00 (0.001)	0.00 (0.001)	0.00 (0.001)	0.170*** (0.041)	0.170*** (0.041)	0.170*** (0.041)	0.074*** (0.018)	0.074*** (0.018)	0.074*** (0.018)	0.074*** (0.018)	0.074*** (0.017)
Domestic market size	0.001*** (0.001)	0.001*** (0.001)	0.001*** (0.001)	0.001*** (0.001)	-1.399* (0.603)	-1.292* (0.505)	-0.890*** (0.262)	-0.296*** (0.070)	-0.296*** (0.070)	-0.267** (0.083)	-0.267** (0.083)	-0.140*** (0.038)
GDP per capita	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	-1.985 (2.685)	-1.106 (1.789)	0.286 (0.473)	-0.254*** (0.056)	-0.254*** (0.056)	-0.267*** (0.041)	-0.267*** (0.041)	-0.393*** (0.087)
Government effectiveness	-0.079*** (0.001)	-0.079*** (0.001)	-0.160*** (0.001)	-0.160*** (0.001)	1.437 (0.814)	1.256* (0.628)	0.739* (0.308)	0.084 (0.057)	0.084 (0.057)	-0.071*** (0.016)	-0.071*** (0.016)	0.013 (0.031)
Settlement duration	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)								
Inverse Mill's ration												
Year-fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	0.588*** (0.141)
Industry fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	(0.141)
Country fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	33,621	33,621	33,621	33,621	33,621	33,621	33,621	33,621	33,621	33,621	33,621	6406
Cluster	40	40	40	40	40	40	40	40	40	40	40	40

Fractionalization1 denotes the historical index of ethnic fractionalization; Fractionalization2 denotes the modern index of ethnic fractionalization; TSI denotes the index of precolonial prevalence of TseTse fly; SEs in parentheses. ***indicates a coefficient significant at the p < 0.001 (**p < 0.01, *p < 0.05) level of confidence.

Table 5 Results of mediation tests.

Mediation model	Indirect effect	SE	95% CI
Indirect effect of TSI on international propensity			
TSI → fractionalization1 → international propensity	−0.041**	0.002	[−0.045, −0.036]
TSI → fractionalization2 → international propensity	−0.043**	0.002	[−0.047, −0.038]
Indirect effect of TSI on international intensity			
TSI → fractionalization1 → international intensity	−0.008*	0.003	[−0.016, −0.001]
TSI → fractionalization2 → international intensity	−0.008*	0.004	[−0.015, −0.001]

Fractionalization1 denotes the historical index of ethnic fractionalization; Fractionalization2 denotes the modern index of ethnic fractionalization; TSI denotes the index of precolonial prevalence of TseTse fly.

**Indicates a coefficient significant at the $p < 0.01$ ($*p < 0.05$) level of confidence.

this study. For example, with a mission of fostering understanding and cooperation between and within business communities, the France–Nigeria Investment Club, which was formed in 2018, has been motivating entrepreneurs to venture into markets not just in Nigeria but across Africa and other continents as well.

Limitations and future research. The current study has several limitations that highlight avenues for future research. First, while our measure of internationalization captures internationalization propensity and intensity, limited insight is offered as to how informal institutions affect other internationalization activities. Future research can examine the extent of internationalization in terms of speed and scope, as well as the nuanced impact of informal institutions within different dimensions of internationalization. Second, this study specifically focuses on ethnic fractionalization as an informal institution, which is particularly relevant in Africa. As suggested by Webb et al. (2020), informal institutions can manifest in multiple forms, such as the distinct beliefs born of ethnicity, religion, or tradition. Therefore, future research can expand our arguments to investigate other forms of informal institutions rather than simply culture in both developing and developed countries to provide a more comprehensive understanding of their profound influence on international entrepreneurship. Third, the data used in this study limit the investigation to the institutional environment in home countries and the historical roots of particular institutions. Future research might examine institutional arrangements in host countries as well. For example, the costs and benefits of economic and cultural distance between home and host countries for the international expansion of new ventures may be shaped by the institutional configuration new ventures are faced with. We believe there are opportunities for future research to address the above limitations, including through the use of mixed-method and configurational research designs across African countries. This would advance our understanding of how institutions shape entrepreneurial internationalization and help drive the promotion of successful international entrepreneurship in Africa.

Data availability

The datasets generated during and/or analyzed during the current study are available in the Dataverse repository: <https://doi.org/10.7910/DVN/ZBXIJN>. These datasets were derived from World Bank Enterprise Survey: <https://www.enterprisesurveys.org/en/data/>.

Received: 7 December 2022; Accepted: 18 July 2023;
Published online: 10 August 2023

References

- Acemoglu D, Johnson S, Robinson J (2003) Disease and development in historical perspective. *J Eur Econ Assoc* 1:397–405
- Adomako S, Amankwah-Amoah J, Dankwah GO, Danso A, Donbesuur F (2019) Institutional voids, international learning effort and internationalization of emerging market new ventures. *J Int Manag* 25(4):100666
- Adomako S, Opoku RA, Frimpong K (2018) Entrepreneurs' improvisational behavior and new venture performance: Firm-level and institutional contingencies. *J Bus Res* 83:10–18
- Aeeni Z, Motavasel M, Sakhdari K, Saeedikiya M (2019) Extending the potential of Baumol's entrepreneurial allocation theory: Toward the entrepreneur-institution nexus. *J Entrep Emerg Econ* 11(3):416–435
- Ahlerup P, Olsson O (2012) The roots of ethnic diversity. *J Econ Growth* 17(2):71–102
- Alesina A, Zhuravskaya E (2011) Segregation and the quality of government in a cross section of countries. *Am Econ Rev* 101(5):1872–1911
- Alhorr HS, Moore CB, Payne GT (2008) The impact of economic integration on cross-border venture capital investments: evidence from the European Union. *Entrep Theor Pract* 32:897–917
- Alsam M (2015) The effect of the TseTse Fly on African development. *Am Econ Rev* 105:382–410
- An J, Hou W, Lin C (2022) Epidemic disease and financial development. *J Financ Econ* 143(1):332–358
- Angeles L (2011) Institutions, property rights, and economic development in historical perspective. *Kyklos* 64:157–177
- Autio E, Kenney M, Mustar P, Siegel D, Wright M (2014) Entrepreneurial innovation: the importance of context. *Res Policy* 43:1097–1108
- Baier-Fuentes H, Merigó JM, Amorós JE, Gaviria-Marín M (2019) International entrepreneurship: a bibliometric overview. *Int Entrep Manag J* 15:385–429
- Barr A, Oduro A (2002) Ethnic fractionalization in an African labour market. *J Dev Econ* 68:355–379
- Beck T, Demirgüç-Kunt A, Levine R (2003) Law endowments and finance. *J Financ Econ* 70(2):137–181
- Bennett DL, Nikolaev B (2021) Historical disease prevalence, cultural values, and global innovation. *Entrep Theor Pract* 45:145–174
- Bisin A, Verdier T (2011) The economics of cultural transmission and socialization. In: *Handbook of social economics*. Elsevier, pp. 339–416
- Blair RA, Morse BS, Tsai LL (2017) Public health and public trust: Survey evidence from the Ebola Virus Disease epidemic in Liberia. *Soc Sci Med* 172:89–97
- Bottazzi L, Da Rin M, Hellmann T (2016) The importance of trust for investment: Evidence from venture capital. *Rev Financ Stud* 29:2283–2318
- Brady J (1975) 'Hunger' in the tsetse fly: The nutritional correlates of behaviour. *J Insect Physiol* 21:807–829
- Bucciari D, Javalgi RG, Cavusgil E (2020) International new venture performance: Role of international entrepreneurial culture, ambidextrous innovation, and dynamic marketing capabilities. *Int Bus Rev* 29(2):101639
- Cahen FR, Lahiri S, Borini FM (2016) Managerial perceptions of barriers to internationalization: an examination of Brazil's new technology-based firms. *J Bus Res* 69:1973–1979
- Cheng CA, Sun W, Ye K, Zhang N (2020) The effect of auditing on promoting exports: evidence from private firms in emerging markets. *Manag Sci* 66(4):1692–1716
- Chuah SH, Fahoum R, Hoffmann R (2013) Fractionalization and trust in India: a field-experiment. *Econ Lett* 119:191–194
- Churchill S, Munyanyi M, Russell S, Trinh T (2021) Early life shocks and entrepreneurship: Evidence from the Vietnam War. *J Bus Res* 124:506–518
- Dana L-P, Salamzadeh A, Mortazavi S, Hadizadeh M (2022) Investigating the impact of international markets and new digital technologies on business innovation in emerging markets. *Sustainability* 14:983

- Dass P (2000) Relationship of firm size, initial diversification, and internationalization with strategic change. *J Bus Res* 48:135–146
- De Clercq D, Hessels J, van Stel A (2008) New ventures' export orientation: Outcome and source of knowledge spillovers. *Small Bus Econ* 31:283–303
- Decker S, Estrin S, Mickiewicz T (2020) The tangled historical roots of entrepreneurial growth aspirations. *Strateg Entrep J* 14:616–638
- Delhey J, Newton K (2005) Predicting cross-national levels of social trust: Global pattern or Nordic exceptionalism? *Eur Soc Rev* 21:311–327
- de Moraes Santos N, Cottone PF, Antloga C, Hochdorn A, Carvalho AM, Barbosa AM (2022) Female entrepreneurship in Brazil: how scientific literature shapes the sociocultural construction of gender inequalities. *Humanit Soc Sci Commun* 9:360
- Dimitratos P, Lioukas S, Carter S (2004) The relationship between entrepreneurship and international performance: the importance of domestic environment. *Int Bus Rev* 13(1):19–41
- Dimitratos P, Johnson JE, Plakoyiannaki E, Young S (2016) SME internationalization: How does the opportunity-based international entrepreneurial culture matter? *Int Bus Rev* 25(6):1211–1222
- Elish E (2022) Political and productive capacity characteristics as outward foreign direct investment push factors from BRICS countries. *Humanit Soc Sci Commun* 9:432
- Esteban J, Mayoral L, Ray D (2012) Ethnicity and conflict: An empirical study. *Am Econ Rev* 102:1310–1342
- Estrin S, Meyer KE, Wright M, Foliano F (2008) Export propensity and intensity of subsidiaries in emerging economies. *Int Bus Rev* 17(5):574–586
- Eze SC, Awa HO, Chinedu-Eze VCA, Bello AO (2021) Demographic determinants of mobile marketing technology adoption by small and medium enterprises (SMEs) in Ekiti State, Nigeria. *Humanit Soc Sci Commun* 8:82
- Fainshmidt S, Smith AW, Aguilera RV (2022) Where do born globals come from? A neoconfigurational institutional theory. *Organ Sci* 33(4):1047–7039
- Figueredo AJ, Gladden PR, Black CJ (2012) Parasite stress, ethnocentrism, and life history strategy. *Behav Brain Sci* 35:87–88
- Finseraas H, Jakobsson N (2012) Trust and ethnic fractionalization: The importance of religion as a cross-cutting dimension. *Kyklos* 65:327–339
- Ganotakis P, Love JH (2012) Export propensity, export intensity and firm performance: The role of the entrepreneurial founding team. *J Int Bus Stud* 43:693–718
- Gifford-Gonzalez D (2000) Animal disease challenges to the emergence of pastoralism in Sub-Saharan Africa. *Afr Archaeol Rev* 17:95–139
- Gimede V (2004) Export propensities and intensities of small and medium manufacturing enterprises in South Africa. *Small Bus Econ* 22:379–389
- Grosfeld I, Alexander R, Ekaterina Z (2013) Persistent Antimarket Culture: A Legacy of the Pale of Settlement after the Holocaust. *Am Econ J: Econ Policy* 5(3):189–226
- Hodgson GM (2002) The evolution of institutions: An agenda for future theoretical research. *Const Polit Econ* 13:111–127
- Hunter JM (1974) Sleeping sickness in Africa—man against Tsetse: struggle for Africa. *Afr Stud Rev* 17:264–266
- Hursey B, Slingenbergh J (1995) The tsetse fly and its effects on agriculture in sub-Saharan Africa. *World Anim Rev* 84:67–73
- Ilhan-Nas T, Sahin K, Cilingir Z (2011) International ethnic entrepreneurship: antecedents, outcomes and environmental context. *Int Bus Rev* 20(6):614–626
- Jafari-Sadeghi V, Nkongolo-Bakenda JM, Dana LP, Anderson RB, Biancone PP (2020) Home country institutional context and entrepreneurial internationalization: The significance of human capital attributes. *J Int Entrep* 18:165–195
- Kiszewski A, Mellinger A, Spielman A, Malaney P, Sachs SE, Sachs J (2004) A global index representing the stability of malaria transmission. *Am J Trop Med Hyg* 70:486–498
- Klüppel LM, Pierce L, Snyder JA (2018) The deep historical roots of organization and strategy: traumatic shocks, culture, and institutions. *Organ Sci* 29:702–721
- Knack S, Keefer P (1997) Does social capital have an economic payoff? A cross-country investigation. *Q J Econ* 112:1251–1288
- Korsakienė R, Diskienė D, Smaliukienė R (2015) Institutional theory perspective and internationalization of firms. How institutional context influences internationalization of SMEs? *Entrepreneurship Sustain Issue* 2(3):142–153
- La Porta R, Lopez-de-Silanes F, Shleifer A (2008) The economic consequences of legal origins. *J Econ Liter* 46:285–332
- Liesch PW, Welch LS, Buckley PJ (2011) Risk and uncertainty in internationalisation and international entrepreneurship studies: review and conceptual development. *Manag Int Rev* 51:851–873
- Li Y, Chang Y, Liang Z (2022) Attracting more meaningful interactions: The impact of question and product types on comments on social media advertisements. *J Bus Res* 150:89–101
- Lowes S, Montero E (2021) The legacy of colonial medicine in Central Africa. *Am Econ Rev* 111:1284–1314
- Lu Y, Zhou Y, Liu P (2023) Improving the entrepreneurial ability of rural migrant workers returning home in China: study based on 5,675 questionnaires. *Humanit Soc Sci Commun* 10:150
- Lv Z, Rodríguez-García M, Sendra-García J (2021) Does institutional quality affect the level of entrepreneurial success differently across the entrepreneurship distribution? *Rev Manag Sci* 15:937–955
- Mack AJ, White D, Senghor O (2021) The benefits of exposing post-secondary students to entrepreneurship training in Trinidad and Tobago. *Humanit Soc Sci Commun* 8:223
- Magni D, Chierici R, Fait M, Lefebvre K (2022) A network model approach to enhance knowledge sharing for internationalization readiness of SMEs. *Int Market Rev* 39(3):626–652
- Manolova TS, Manev IM, Gyoshev BS (2014) Friends with money? Owner's financial network and new venture internationalization in a transition economy. *Int Small Bus J* 32:944–966
- Miciukiewicz K, Moulart F, Novy A, Musterd S, Hillier J (2012) Problematising urban social cohesion: a transdisciplinary endeavour. *Urban Studies* 49:1855–1872
- Mohr A, Shoobridge GE (2011) The role of multi-ethnic workforces in the internationalisation of SMEs. *J Small Bus Enterp Dev* 18(4):748–763
- Muralidharan E, Pathak S (2017) Informal institutions and international entrepreneurship. *Int Bus Rev* 26:288–302
- Nasra R, Dacin MT (2010) Institutional arrangements and international entrepreneurship: the state as institutional entrepreneur. *Entrep Theor Pract* 34:583–609
- Nguyen VK, Peschard K (2003) Anthropology, inequality, and disease: a review. *Ann Rev Anthropol* 32:447–474
- Onwujekwe O, Chima R, Okonkwo P (2000) Economic burden of malaria illness on households versus that of all other illness episodes: a study in five malaria holo-endemic Nigerian communities. *Health Policy* 54:143–159
- Oviatt BM, McDougall PP (2005) Defining international entrepreneurship and modeling the speed of internationalization. *Entrep Theor Pract* 29:537–553
- Pacheco DF, York JG, Dean TJ, Sarasvathy SD (2010) The coevolution of institutional entrepreneurship: a tale of two theories. *J Manag* 36:974–1010
- Packard RM (2009) "Roll back Malaria, Roll in development"? Reassessing the economic burden of Malaria. *Popul Dev Rev* 35:53–87
- Pinho JC, Martins L (2010) Exporting barriers: insights from Portuguese small-and medium-sized exporters and non-exporters. *J Int Entrep* 8:254–272
- Pinkham BC, Peng MW (2017) Overcoming institutional voids via arbitration. *J Int Bus Stud* 48:344–359
- Posner DN (2004) Measuring ethnic fractionalization in Africa. *Am J Polit Sci* 48:849–863
- Puffer SM, McCarthy DJ, Boisot M (2010) Entrepreneurship in Russia and China: the impact of formal institutional voids. *Entrep Theor Pract* 34:441–467
- Putnam RD (2007) E Pluribus Unum: Diversity and community in the twenty-first century. *Scan Polit Stud* 30:137–174
- Ratten V (2020) Coronavirus and international business: an entrepreneurial ecosystem perspective. *Thunderbird Int Bus Rev* 62(5):629–634
- Reuber AR, Knight GA, Liesch PW, Zhou L (2018) International entrepreneurship: the pursuit of entrepreneurial opportunities across national borders. *J Int Bus Stud* 49:395–406
- Roig A, Sun-Wang JL, Manfredi-Sánchez JL (2020) Barcelona's science diplomacy: towards an ecosystem-driven internationalization strategy. *Humanit Soc Sci Commun* 7:114
- Ruef M (2020) The household as a source of labor for entrepreneurs: evidence from New York City during industrialization. *Strateg Entrep J* 14:20–42
- Saeedikiya M, Aeni Z, Motavaseli M, Farsi JY (2017) The effect of innovation on growth aspirations and internationalization in firms: Africa compared to the Protestant Europe. In: 20th International Scientific Conference—Enterprise and Competitive Environment, Brno, the Czech Republic, Conference Proceedings. pp. 753–762
- Salamzadeh A, Hadizadeh M, Rastgoo N, Rahman MM, Radfard S (2022) Sustainability-oriented innovation foresight in international new technology based firms. *Sustainability* 14:13501
- Sarma N, Patouillard E, Cibulskis RE, Arcand J-L (2019) The economic burden of Malaria: revisiting the evidence. *Am J Trop Med Hygiene* 101:1405–1415
- Schaub M (2017) Second-order ethnic diversity: the spatial pattern of diversity, competition and cooperation in Africa. *Polit Geogr* 59:103–116
- Schumpeter JA (1947) The creative response in economic history. *J Econ Hist* 7(2):149–159
- Simmons SA, Wiklund J, Levie J, Bradley SW, Sunny SA (2019) Gender gaps and reentry into entrepreneurial ecosystems after business failure. *Small Bus Econ* 53:517–531
- Spinage CA (2012) The Tsetse Fly I: Africa's bane and benefice. In: *African ecology: benchmarks and historical perspectives*. Springer Berlin Heidelberg, Berlin, Heidelberg. pp. 821–866

- Sui S, Baum M, Malhotra S (2019) How home-peers affect the export market exit of small firms: evidence from Canadian exporters. *Entrep Theor Pract* 43(5):1018–1045
- Sydow A, Cannatelli BL, Giudici A, Molteni M (2022) Entrepreneurial workaround practices in severe institutional voids: evidence from Kenya. *Entrep Theor Pract* 33(4):1251–1272
- Terán-Yépez E, Jiménez-Castillo D, Sánchez-Pérez M (2023) The role of affect in international opportunity recognition and the formation of international opportunity beliefs. *Rev Manag Sci* 17:941–983
- Terjesen S, Hessels J, Li D (2016) Comparative international entrepreneurship: a review and research agenda. *J Manag* 42:299–344
- van Staveren I, Pervaiz Z (2017) Is it ethnic fractionalization or social exclusion, which affects social cohesion? *Soc Indic Res* 130:711–731
- Vuong QH, Nguyen HTT, Pham TH, Ho MT, Nguyen MH (2021) Assessing the ideological homogeneity in entrepreneurial finance research by highly cited publications. *Humanit Soc Sci Commun* 8:110
- Wadhvani RD, Kirsch D, Welter F, Gartner WB, Jones GG (2020) Context, time, and change: historical approaches to entrepreneurship research. *Strateg Entrep J* 14:3–19
- Webb JW, Khoury TA, Hitt MA (2020) The influence of formal and informal institutional voids on entrepreneurship. *Entrep Theor Pract* 44:504–526
- Welburn SC, Molyneux DH, Maudlin I (2016) Beyond tsetse—implications for research and control of human African Trypanosomiasis Epidemics. *Trends Parasitol* 32:230–241
- Welter F (2011) Contextualizing entrepreneurship—conceptual challenges and ways forward. *Entrep Theor Pract* 35:165–184

Competing interests

The author(s) declare no competing interests.

Ethical approval

This article does not contain any studies with human participants performed by any of the authors.

Informed consent

This article does not contain any studies with human participants performed by any of the authors.

Additional information

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